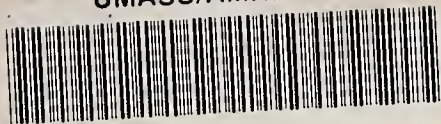


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# Annual Report Division of Forests and Parks Fiscal Year 1988



Massachusetts Department of Environmental Management





A N N U A L R E P O R T S

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BUREAU OF FOREST DEVELOPMENT

THOMAS F. QUINK, CHIEF

BUREAU OF SHADE TREE MANAGEMENT & PEST CONTROL

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FISCAL AFFAIRS OFFICE

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SPECIAL THANKS TO THE SECRETARIES WHO TYPED THIS REPORT:

GRACE VITELLO  
CHARLOTTE SPENCER  
MARIE FIRICANO



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ANNUAL REPORT  
FISCAL YEAR 1988  
BUREAU OF RECREATION  
CHARLES H. DANE, CHIEF

In fiscal year 1988 the Mass. Division of Forests & Parks Bureau of Recreation welcomed 11,808,695 visitors and accounted for \$6.696.579 in revenue, while providing varied recreational opportunities on 265,000+ acres. An operation of this magnitude obviously encompasses a multitude of special people, programs, and events so the following are just a few examples of our accomplishments.

Public Information

The Department of Environmental Management has continued to move forward in our efforts to provide the public with information regarding the tremendous availability and diversity of recreation experiences at our facilities. The third annual celebration to increase public awareness of our state forests and parks system took place on June 25th with special programs and free admission to all facilities. The Mass Forests & Parks brochure has been modified and updated with an additional printing of 150,000 copies. We have begun to produce a new series of trail maps which include accurate directions and topographical lines which will enable both experienced and novice hikers to enjoy their sport. A brochure specifically for campers has been produced as has a Spanish language brochure for Region 4 facilities.

### Signage

This year was the culmination of several years of concerted effort to provide a good system of directional signage to our far flung facilities. Our visitors are now guided by huge signs erected on limited access highways by the State Department of Public Works, to roads with specific facility signs, to roads with generic state park signs, and finally to the entrance sign of their selected destination. Thanks to all of you who saw this sometimes very frustrating project through to its completion.

### Travelers Information Radio

A new travelers information system has been installed in Region one. This is a short range radio station whose primary purpose is to service Horseneck Beach State Reservation visitors with information as to beach conditions, weather, parking, traffic status, and camping opportunities. It is anticipated that management problems at this extremely busy ocean beach will be somewhat relieved as will the tensions of our visitors. If this concept is successful it will be instituted at other busy areas.

### Staff Improvement Programs

Providing the availability to our personnel for gaining information and improving their skills has continued to be a priority. This has taken many and varied forms including: two Recreation Supervisors Conferences; the "We Are Our Most Valuable Resource" executive development program; courses provided by the Department of Personnel and Administration; in house workshops; and special training varying from Park Police to welding.

While these training programs are time consuming they are of extreme importance since they improve the skills of our personnel thus allowing them to further their careers while better serving the public.

### Accessibility

Accessibility for all persons, regardless of their abilities to all Department of Environmental Management facilities is a challenge which the Department is taking very seriously. Commissioner Gutensohn has formed the "DEM Access Committee" with the charge to provide him with a report which will form the basis for a policy and action plan which will move our park system toward full accessibility. This report will be completed in early FY 89.

Timing for this effort seems to be excellent since the Department of Capital Planning and Operations has a pool of ten million dollars available for rehabilitation of state facilities to improve accessibility.

### Take Pride In America

The North American Family Campers Association has worked with the Bureau of Recreation on cleanups and improvements at Otter River State Park for several years. They have also participated in cleanups at Willard Brook State Park and have members on citizen advisory groups at several other areas. In 1987 this group was nominated by the Division of Forests and Parks to be recognized by the nationally sponsored "Take Pride In America" campaign. They were ultimately selected as one of 212 finalist nationwide and attended ceremonies in Washington where President Reagan presented awards to the winners. Unfortunately our nominee was not among those so honored. Cooperation with such groups benefits the Department and the general public greatly and we anticipate expanding such programs in the future.

### Trails

Trail acquisition, construction, rehabilitation, and regulation has, and will continue to be, a focus of attention. An active Statewide Trails Committee is in place, each of our 5 regions now has a designated trails coordinator, and specific funding for trails has been appropriated. In addition a specific portion of the Forest



Generic Environmental Impact Report deals with Off Road Vehicle Trail Use. FY 89 should be the year in which many of the concerns regarding trail use on DEM lands will be brought clearly into focus. Only then can a firm plan of action be formed and implemented.

#### Rinks

During fiscal year 1988 skating rinks experienced tremendous demands for ice time prompting several inquiries regarding adding additional ice slabs to some existing facilities. It seems clear that skating interests which reached their lowest point in the early 80's are beginning a resurgence. This situation is additionally impacted by the continued closing of privately owned rinks. Our challenge for the future is to be able to respond to this increased interest with programs, and available ice time, designed to satisfy the entire skating community.

#### Pools

Once again the number one product of pool operations is the "Learn to Swim Program" offered in all 19 pools across the state. This program teaches thousands of urban children the skill of swimming which they otherwise might never be exposed to. Extensive refurbishing projects which were accomplished this year varied in scope from a new sand filter system at the Bennet Field pool in Worcester to fibreglassing of pool filter tanks in four other pools. These projects have increased the quality of product delivery across the state for our pool program.

#### Park Ranger

The mounted Park Ranger program continued to grow in FY 1988 and demonstrated new methods in our approach to recreational law enforcement. Requests for the unit included routine patrol of busy parks, special interpretive functions, search and rescue, traffic patrols, and security. The highlight of the year was the construction of a float used to transport horses daily to Washburn Island in Falmouth. Special training for horses and riders resulted in this patrol being one of the most unique in the country.

### Lyme Disease

Lyme Disease, its causes, effects, and treatment have become a matter of increasing concern and newsworthiness in FY88. In FY87 the DEM instituted a pilot project to determine infection potential at two parks. This was expanded to include the treatment of one area with special tubes filled with chemically treated cotton which is injurious only to ticks that transmit the disease. In FY88 the treated area was rechecked and the incidence of infected ticks proved to be reduced dramatically. We also sampled for ticks and determined their infection rates in a total of eleven parks with the emphasis in Regions 1 and 2 but at least one facility in each of the other regions. This research was carried out by Dr. Thomas Mather of Harvard Research under a contract with EcoHealth Inc.

### Equipment

Much needed heavy equipment was purchased in this fiscal year including 6 tractors, 2 beach cleaners, 5 Zamboni Ice Resurfacers and an aerial bucket truck. In addition we were able to continue with the replacement of worn out rolling stock by purchasing 10- $\frac{1}{2}$  ton pickups, 9- $\frac{3}{4}$  ton pickups, 4-1 ton trucks and 2 large dump truck. This equipment along with improvements to the statewide radio system as well as a large amount of other support equipment such as lawn mowers has finally brought our equipment needs to a level which is acceptable if reasonable replacements are continued on an annual basis.

A complete list of equipment purchased is listed by region in the appendix.

# RECREATION EQUIPMENT PURCHASED IN FY 88

## STATEWIDE

3	Lavatory Trailers (1 Delivered)	100,000
40	sets - Buoys Bathing and Boating Areas	6,800
1	Wachusett Radio Equipment Statewide	54,948
1	Utility Service Truck - Rink Program	19,469
32	21" Push lawnmowers - 4 Regions	8,512
31	Rescue Boats - Beach Program	16,089
5	Stump Chippers Parks Program	50,000
1	A.M. Radio Station Horseneck Beach Pilot	9,500
5	Power Carriers Trails Program	10,000
1650	Trash Can Covers Camping areas	26,053
		<hr/> 301,371

## REGION #1

1	Base Station Radio Shawme Crowell	4,000
1	Portmobile Radio Shawme Crowell	1,800
1	Tractor 4x4 Diesel Ames Nowell	14,000
2	2 Wheel Gravelly Tractors Freetown & MSSF	5,931
4	Ice Edgers Brockton, Franklin, N.B. Plymouth	2,760
7	Rescue Boards Horseneck, Scusset, Lloyd MSSF, Massasoit	4,200
1	Miser Model Sawmill Regionwide	11,000
2	1/2 ton pickups S-4220-S4449 MSSF	18,182
1	Window Bodied Van S-6250 MSSF	11,425
2	3/4 ton pickups S-4968 Foxboro MSSF (New)	28,126
1	Snowmobile pkg.	3,523
1	1 ton rack dump S-4409 Ames Nowell	14,079
1	10/12 Yd Dump S-4996 MSSF	43,482
2	Zamboni Ice Resurfacers New Bedford, Franklin	78,378
1	Tractor for beach cleaner Horseneck	26,526
1	Beach cleaner Horseneck	33,000
		<hr/> 300,412

## REGION II

1	1 ton steel body dump S-246 Salisbury Beach	18,547
1	Sand spreader Regional	2,280
1	Mig welding package Regional	2,000
10	20" Push type lawnmowers Regional	3,970
2	Zamboni Ice Resurfacer Lowell and Peabody	80,000
2	1/2 ton pickups S-6721-6722 Maudslay	18,182
1	Aluminum boat and trailer Region	1,742
1	Beach cleaner tractor Salisbury	26,526
1	3/4 ton pickups Maudslay	14,063
1	46" Rotary mower Regionals	3,588



# REGION II (cont'd)

1	Beach cleaner	Salisbury	33,000
2	Snowmobile Pkgs	Regionals	7,046
1	Sand and Salt spreader	Regionals	2,965
1	5-6 Yd. Dump	S-4258 Willard Brook	36,500
			<hr/> 251,009

# REGION III

1	Zamboni Ice Resurfacers	Gardner Rink	39,000.00
1	15 ton tilt bed trailer	Clinton	14,000.00
2	1/2 ton pickups	S-5601 Douglas S-4437 Leominster	18,182.00
1	Diesel tractor with loader	Regionwide	26,385.72
2	46" Rotary mower		7,176.00
2	3/4 ton 4x4 pickups	Worcester Rink -S-4395 Wachusett Mtn. S-4394	29,926.00
2	1/2 ton pickups	Douglas S-5552- Rutland S-4050	20,833.52
			<hr/> 155,503.24

# REGION IV

1	3/4 Ton crew cab pickups	Amherst	13,916.00
1	Aerial lift	Regionwide	65,528.00
1	46" Rotary mower	Parks Program	3,588.00
2	Snowmobile packages	Statewide	7,046.00
4	1 ton rack dump	Hampden Pond S-14419 D.A.R. S-4400 Warwick S-4293 Monroe S-6223	56,316.00
2	3/4 ton 4x4 pickups	Holyoke Rink S-4425 Chester S.F. S-4364	29,926.00
			<hr/> 176,320.00

# REGION V

6	Chain Saws	Regionwide	1,698.00
2	Walk behind Comm. lawnmowers	Regionwide	4,360.00
6	Brushcutters	Regionwide	4,014.00
1	Diesel tractor with bucket	Regionwide	33,785.00
2	1/2 ton pickups	S-5586 Pittsfield, S-4283 Sandisfield	18,182.00
1	1 ton rack dump	S-4411 Pittsfield	14,079.00
1	Bulldozer Crawler Tractor		48,325.00

REGION V (cont'd)

1	3/4 4 x 4 pickup	S-4376	Mt. Greylock	14,963.00
1	5/6 yd dump truck	S-4258	Willard Brook	32,944.34
				<hr/>
				172,350.34

**TOTAL F.Y.88 equipment expenditures**

**1,220,465.58**

# ANNUAL REPORT

FISCAL YEAR 1988

BUREAU OF FOREST DEVELOPMENT

THOMAS F. QUINK, CHIEF FORESTER

## INTRODUCTION

Massachusetts is fortunate to be about two-thirds forested -- especially since it is the third most densely populated state in the nation. These forests contribute significantly to the Commonwealth's economy and environmental quality. Although many are not aware of it, The Bay State is the leading forest industrial state in the region. More people are employed and more value is added by manufacturing than in any other New England state.

The Bureau strives to improve the economic stability and the quality of life of the Commonwealth's citizens through improved forest management, soil and water management, resource utilization and other related activities on publicly and privately owned woodlands.

## PERSONNEL

Forestry lost two very good friends with the passing of Dr. Ernest Gould and Dr. Donald Mader. Ernie chaired the State Forestry Committee and the GEIR Technical Advisory Committee. Don



Mader was closely involved with the GEIR's research on water quality and DEM's acid rain research program. Both are missed very much!

Chief Forester, Tom Quink, received the first "Outstanding Forester Award" from the Yankee Division, NESAF, at its annual meeting in February. The award is given for professional achievement in forestry, participation in activities of the Society of American Foresters, and community service.

Chief Quink was also appointed by U.S.D.A. Secretary of Agriculture, Richard Lyng, to the Cooperative Forestry Research Advisory Council. This body meets in Washington D.C. and advises the Secretary on forestry research needs, particularly as they relate to McIntire-Stennis Research Funds.

Fiscal Year 1988 saw several changes in forestry personnel. Madeline Arce, clerk in the Bureau of Forest Development for two years, left for a promotion to Administrative Assistant in the Department of Public Health. Johnna Desautels, Region III clerk assigned to the forestry program, was promoted to clerk in the Chief Forester's Office in Boston.

John Tiffany, former employee of the Division's Berkshire Region, was rehired as an assistant forester. John filled the vacancy created by the promotion of Ann Marie Loud to the Berkshire - Pioneer RC&D Forester position.

Several other personnel changes occurred within the Bureau's Forest Products Marketing & Utilization Program and are found elsewhere in this report.

#### Society of American Foresters

The Bureau played a lead role in hosting the annual meeting

of the New England Society of American Foresters (NESAF) during March 9-11, 1988 at Lowell, Ma. The meeting's theme was "Development in the New England Forest: Finding Common Ground". It was successful in bringing together forestry interests, conservation organizations and individuals concerned with finding solutions to save woodlands from development.

The meeting was an overwhelming success thanks to the efforts of DEM personnel who made arrangements, developed the program, advertised the meeting, and participated in the various sessions: Commissioner Gutensohn, Director Bliss, Austin Mason (General Chairman), Michael Fleming (Arrangements Chairman), Thomas Quink (Program Chairman), Joanne Nunes, Laura Dooley, Carmine Angeloni, Douglas Leab, David Fraser, Harold Jackson, Darrell Keay, Harris Penniman, Don Stoddard, Muriel More, James Soper, Dick Kulis, William Rivers, and Cynthia Varrakat.

## PRIVATE LAND MANAGEMENT

### SERVICE FORESTRY OVERVIEW

Besides administering the Forest Taxation Law (M.G.L. Chapter 61) for privately owned forestland, Bureau Service Foresters approve and inspect timber harvesting operations, as governed by the Forest Cutting Practices Act (M.G.L. Chapter 132, s. 40-46). Additional projects include administering the American Forest Council's Tree Farm program at the state level; assisting Christmas Tree growers; conducting workshops for loggers, landowners, consulting foresters and municipal officials; and attending conferences, workshops and meetings relevant to forestry issues.

### FOREST TAX LAW/FARMLAND ASSESSMENT

FY1988 continued to show a decrease in the number of new applications for Chapter 61 classification as well as a decrease in renewals.

During FY1988, 126 new applications/management plans containing a total of 9,017 acres were processed into the Chapter 61 program. This represents an 11% decrease in the number of plans submitted from the previous year. A total of 174 management plans comprising 10,125 acres were processed for recertification, representing a 15% decrease in renewals from that of the previous year. This is the fourth consecutive year to show a decrease in the number of new applications for Chapter 61 classification.

Several proposed amendments to Chapter 61 were submitted to the legislature during FY1988. They concerned the right of cities and towns to purchase land earmarked for removal from Chapter 61



classification. At this time, none of these have been enacted.

The revision and reprinting of the booklet "Towards A Better Understanding Of Forestland Taxation In Massachusetts" was completed this year. It will be distributed to foresters, tax assessors and landowners to provide up to date information on Chapter 61.

For the first time, several towns have utilized a provision in Chapter 61 which allows them first option to purchase land which is removed from Chapter 61 Classification. We expect that more towns will use this option to provide more local open space land.

The new regional computer record keeping system was used to produce accurate statewide statistical data for Chapter 61 and 61A. Under Chapter 61 there are a total of 2,788 forest management plans covering 212,958 acres, and under 61A, a total of 174 plans covering 10,803 acres.

#### FOREST CUTTING PRACTICES LAW

Fiscal Year 1988 saw the beginning of a period of careful study and refinement of the Cutting Practices Act (Ch. 132, sec. 40-46). The major impetus for this was the mandated forest practices Generic Environmental Impact Report (GEIR), which focuses on the impact of the Cutting Practices Act. In addition, DEM began making improvements suggested by their 4 1/2 years of experience with the administration of the act and regulations.

GEIR: This subject is covered elsewhere in the Bureau's annual report. In short, data were collected from FY86 cutting plans and analyzed by Professor Mawson at U. Mass. An on-the-ground study of these plans was designed and will be conducted in

FY89. Questionnaires will also be completed by Service Foresters and fire personnel.

The GEIR Ch. 132 subcommittee (which includes Joe Smith, Ed Fuller, and Mike Parker) will prepare a report from these studies which will recommend improvements in the act. Their report is scheduled to be submitted in November 1988, to the GEIR Technical Advisory Committee.

Regulatory Changes: In November 1987, the Wetlands Protection Act (Ch. 131, sec. 40) regulations were amended by the addition of wildlife habitat as a protected interest. In order to keep the Ch. 132 regulations consistent with the wetlands regulations, Director Bliss reconvened the Forestry Advisory Committee in June, and work was begun toward making the necessary regulatory changes. The regulations will be amended to include protection of the habitat of rare and endangered wildlife species.

As a result of suggestions made during the Regional Quarterly Forestry Reviews, some changes to the language of Ch. 132 sec. 40-46 were prepared. These involved making operators responsible for notification, defining landowner's agents and making them responsible for notification and performance, and finally, better defining the licensing requirements.

These changes were presented to the State Forestry Committee where a decision was made to hold off on submission to the legislature until the completion of the GEIR so that all proposed changes could be submitted at one time.

Erosion Control Handbook: Mike Parker and Extension Forester Dave Kittredge completed the Massachusetts Logging And Erosion Control Handbook, which includes the road and trail standards for Ch. 132. The handbook will be pocket-sized and will be

distributed to all timber harvester license holders. At this writing, the handbook is at the printers.

Cutting activity: There was a slight increase of cutting activity as reflected in the number of cutting plans received. The number of cutting plans filed, and the acreage and volume covered by these plans all exceeded the FY87 totals, but were still below the FY85 and FY86 levels. The level of cutting can probably be attributed to healthy markets for pine and oak and generally good conditions for logging throughout the year. As in the past, the majority of the activity is in Regions 3 and 4.

Legal action: Two license revocation hearings were held in Region 3 as result of Ch. 132 violations. In one case, the logger tragically lost his life in an automobile accident before a decision was made. The other failed to appear for the hearing. His license was suspended.

Policy: The process of encoding Departmental Ch. 132 policy was begun this year, and should be completed in FY89.

Computer: A Ch. 132 spreadsheet was created and used for reporting cutting plans to the Boston Office on a monthly basis.

The newly received DBASE III program is much better suited to storing plans and harvester license information than the programs we had before. Work has slowly begun towards creating the necessary files. Unless someone is able to work on these projects full time, there is no assurance that they will be available anytime in the near future.

#### TIMBER HARVESTER LICENSES

A total of 545 timber harvester licenses were issued by the Boston Office during FY1988; of which 476 were to in-state



loggers, and 69 were to out-of-state loggers. This represents over a 5% increase from the number of licenses issued during the previous fiscal year and \$6,220.00 in revenue for the state's General Fund.

#### YANKEE FOREST COOPERATIVE PROJECT

The Yankee Forest Cooperative Project (YFCP) represents a united effort of the three southern New England states and the U.S. Forest Service to increase the "public" awareness for the appreciation and wise management of forest resources, to improve the quality of these resources, and increase economic stability in the area. This project is financed by a USDA Forest Service "Focused Funding" grant.

The following are some of the Highlights of the project over the past year.

There are now two YFCP foresters working out the George Washington State Park office in Rhode Island. The second forester was very recently hired. He is Marc Tremblay a native of Ipswich, Massachusetts who was a service forester in Mississippi before returning "back east". Both foresters are working on landowner assist requests generated by the direct mailing done last year and requests generated by various newspaper articles. They are also assisting municipal forest landowners in management planning. As a result of their efforts, many landowners have employed the assistance of private consultant foresters to prepare forest management plans and forest product sales.

The Yankee Forest Digest, a forest management guide for woodland owners, is now being distributed to cooperating



landowners. A list of digest recipients is being stored on computer discs for future mailing of supplemental materials useful to woodland owners.

Marketing consultant Creamer-Dickson-Basford (CDB) has been preparing and distributing press releases to several newspaper publishers. Many of these have resulted in articles in local newspapers and business reports, including the Wall Street Journal. CDB recommended to the communications departments in the three states on how they can work together to promote forest management through the Yankee Forest program.

A forestry consulting firm was contracted to survey municipal ownership of forest land in a 40 town demonstration area. The resulting information is being used to target communities for potential forest management. The Town of Northbridge became involved by having forest management plan prepared for recently acquired forestland.

Three Yankee Urban and Community Forestry newsletters have been published and distributed to over five hundred tree wardens, arborists and cooperators in YFCP. Additional copies have been placed in the YFCP Digest.

Yankee Forest has reached many people this last year through displays at fairs, field days, organization meetings, and workshops. Over 500 young people were reached through field days, career days, and the Massachusetts Junior Sportsman Camp where YFCP representatives participated in demonstrations and instructions. An "Instructor Training Course" sponsored through YFCP was held at the University of Massachusetts in Amherst. Personnel from each of the three YFCP states benefited from this training. A workshop was held for private consulting foresters to

inform them about the YFCP and exchange ideas on promoting forest management. A similar meeting was held with DEM foresters. It was decided that a direct mail contact be made to landowners with 10 acres or more. Those responding to the mailing and requesting forest management assistance will be visited by a Service Forester and given a YFCP Digest. Many referrals to private consulting foresters are anticipated. A twenty four acre Gypsy Moth survey plot was established on the George Washington State Forest in Rhode Island. This will be a ten year study to determine the affects of Gypsy Moth defoliation and harvesting on forest health.

A secondary processors directory is near completion and should be distributed soon.

#### FORESTRY INCENTIVES PROGRAM

The Massachusetts FIP allocation for Federal Fiscal Year 1987 was \$121,020.00, a slight (2%) increase over the \$118,414.00 for FY86. County allocations were quite variable as compared to last year: major increases occurred in Franklin (48%) and Hampshire (42%); while significant decreases occurred in Middlesex (52%), Bristol (36%), and Worcester (26%).

Although the statewide allocation increased, the total cost-shares expended decreased by 29%. In general, all county cost-shares decreased, with the notable exception of Franklin (up 32%), Plymouth (up 55%), and Hampshire (up a whopping 1284%).

Practices covering a total of 811 acres were cost-shared, with the majority (773 acres) being FP2 (Timber Stand Improvement). Activity seems to be well distributed among the counties, led by 217 acres in Berkshire (27%) and 145 acres in

Franklin (18%).

#### AGRICULTURAL CONSERVATION PROGRAM (ACP)

The forestry portion of ACP consists of planting (FR1) and TSI (FR2) on lands ineligible for FIP, and of special practices (SP-38: Fuelwood Thinning; SP-44: Management Planning) which are not included under FIP. Total cost-share expenditures for these activities were \$20,462.00 this year, a decrease of 42% over those for last year. This decrease reflects a 32% decrease in the State's ACP allocation, and the conclusion of many SP-38 practices under Long Term Agreements (LTA's). It should be noted that activity under SP-44, newly implemented mid-way through FY86, has increased 10 fold and accounts for 43% of the cost-shares expended and 92% of the acres treated under 1987 ACP.

Activity under ACP seems much less well-distributed than that under FIP: Berkshire, with 1470 acres (33%), and Worcester with 1226 acres (28%), together contain 61% of the acres treated statewide.

#### CONSERVATION RESERVE PROGRAM (CRP)

Through the sixth sign-up period, CRP continues to be of limited application in the Northeast. Significantly, only five states nationwide have not contracted and CRP acres, and three of those were in New England. The following table indicates the acres bid and accepted to date for the six New England states.

<u>STATE</u>	<u>ACRES BID</u>	<u>ACRES ACCEPTED</u>
Connecticut	276	0



Maine	38,222	27,152
Massachusetts	288	25
New Hampshire	8	0
Vermont	437	184
Rhode Island	0	0

<u>PRACTICE</u>	<u>ACRES</u>
Tree Planting (FR1, FP1)	70
Timber Stand Improvement (FR2, FP2)	942
Fuelwood Thinning (SP-38)	161
Management Planning (SP-44)	4040
TOTAL	<u>5213</u>

#### TREE FARM PROGRAM

DEM Foresters continued an active involvement in the American Tree Farm System. The Basil Gilbert family of Rehoboth was honored as the State's outstanding Tree Farmers. Service Foresters Jack Jackson, John Clement, Joe Perry , and Chief Forester Tom Quink assisted in hosting a picnic for Tree Farmers at the Gilbert's Tree Farm, and presented the Gilberts with a sign crafted by John Clement.

Through the efforts of Dick Kulis, Tree Farm Chairman, space was obtained for a display booth at the Big E in West Springfield. Mike Parker, Bob Lear and Doug Leab assisted in the construction of the booth and many other DEM Foresters took turns staffing the booth throughout the fair. The Gilberts were honored again at a luncheon hosted by DEM during the fair.

A Tree Farm booth was also present at the Topsfield Fair through the efforts of Jack Jackson, Bob McLean, Laura Dooley, Darrell Keay, Harry Penniman, and Chuck Pernaa.

Dick Kulis completed his term as Chairman of the Tree Farm Committee, and was honored at the Annual Luncheon in February. He



was succeeded by Jack Jackson, while Doug Leab continued to serve as Treasurer. Kulis and Jackson attended a regional conference of the Tree Farm Executive Committee in Atlantic City, New Jersey.

Joe Perry assisted with arrangements and John Clement made a presentation at the Annual Woodland Dollars and Sense conference, which is sponsored in part by the Tree Farm Committee.

Bureau Foresters helped to maintain the quality of the Massachusetts Tree Farm program by reinspecting 98 Tree Farms and certifying 5 new Tree Farms across the state.

#### CHRISTMAS TREE PROGRAM

Through the combined efforts of Jack Jackson (Service Forester), and Doug Leab (FPM&U Specialist), and the Mass. Christmas Tree Association, a 25 foot Balsam Fir was donated to the U.S.S. Constitution by MCTA members. Chuck Perna, and the above named DEM Foresters plus parks personnel arranged for the delivery of a dozen trees to the State House. The trees were not delivered because the State House chose to use artificial trees this year.

Jackson and other Bureau Foresters attended a number of workshops, twilight meetings and field days sponsored by the Mass. Christmas Tree Association.

Several Bureau personnel were involved in the 1988 Southern New England Christmas Tree Growers biannual conference. The conference was attended by nearly 500 Christmas tree growers from throughout New England. Bob Lear and Jack Jackson served on the Audio-Visual Committee, and Chief Forester Tom Quink served on the Planning Committee.

Foresters Jackson and McLean along with others in the region

assisted in constructing and manning the Christmas Tree & Tree Farm booth at the 1987 Topsfield Fair where Forester Jackson served as a tree judge.

#### TECHNOLOGY TRANSFER

Bureau Foresters, Assistant Foresters, and Regional Supervisors once again attended the Society of American Foresters Annual Meeting in Lowell, Ma. As with any profession, it is important to keep up-to-date of the various issues, challenges and new research in forestry. Many foresters also attended workshops which covered topics from wetlands wildlife, conservation, and management to insects or computers.

Forestry personnel provided instruction and advice to municipalities, schools, and organizations like the Boy Scouts, and also represented the Bureau at regular meetings of forestry or environmental groups such as the Cooperative Extension Service, Mass. Forestry Association, Mass. Assoc. of Professional Foresters, and municipal Conservation Commissions.

#### SPECIAL PROJECTS

Bureau Foresters gave presentations on forestry at high school career days, Boy Scout meetings and outings, and at Arbor Day celebrations in various towns. They also participated in live forestry demonstrations or displays at Forests & Parks Fun Days, State parks, or County fairs.

As the Bureau's wetlands coordinator, Michael Parker (Service Forester, Hampden Co.) reported that there appears to be a low-impact erosion problem with timber harvesting. However, after meeting with several Conservation Commissions on wetland concerns,

he feels that there is a better understanding of forestry practices.

#### CHAPTER 132 CUTTING PLANS PROCESSED

<u>District</u>	<u># Plans Approved</u>	<u>MBF</u>	<u>Cords</u>	<u>Acres</u>
Plymouth, Cape&Islands	20	505	1,200	421
Bristol	11	302	544	448
Norfolk	12	471	1,423	306
Middlesex	34	2,123	1,352	766
Essex	2	60	120	28
N. Worcester	81	6,801	2,798	3,365
C. Worcester	111	6,837	4,404	3,332
S. Worcester	60	3,515	8,868	2,644
W. Franklin	52	4,702	1,450	1,629
E. Franklin	78	7,584	4,212	2,798
Hampshire	67	5,380	3,849	2,363
Hampden	67	6,306	7,365	3,578
N. Berkshire	39	3,829	4,068	2,237
S. Berkshire	30	2,809	1,099	983
<u>Statewide Totals</u>	<u>664</u>	<u>51,224</u>	<u>42,752</u>	<u>24,898</u>



## STATE FORESTLAND MANAGEMENT

### MANAGEMENT FORESTRY OVERVIEW

Management forestry teams in FY1988 nearly equaled last years' "banner" forest products sales in commercial sawtimber and surpassed last years' sales in commercial fuelwood and tons of biomass in terms of revenue committed. This level of accomplishment reflects positively on the efforts of the Management Forestry teams and the health of the forest industry.

### COMMERCIAL SAWTIMBER SALES

During FY1988, over 3,820 MBF and 2,612 cords of sawtimber were marked and sold to private logging contractors. These sales generated over \$536,000 in contractual and "in-kind services" revenue for the States' General Fund.

### COMMERCIAL FUELWOOD SALES

Unlike sawtimber sales, which consists of high-quality, relatively straight and large diameter trees, commercial fuelwood sales generally contain the low-quality, undesirable, damaged or smaller diameter stumpage that is unlikely to grow to sawtimber-quality trees. These sales are also marked as a means of prescribing timber stand improvement, thereby allowing more room for growth and more sunlight and water for the remaining vigorous, potential sawtimber trees.

During FY1988, over 345 acres of DEM forestland were thinned during fuelwood sales and T.S.I., resulting in 2,135 cords sold for a total of \$17,206.80 in contractual and "in-kind services" revenue.



## HOME FUELWOOD PROGRAM

This program has continued to be viable in accomplishing timber stand improvement on State forestland containing a large percentage of poor-quality trees. As expected, the figures for Home Fuelwood lots sold were down significantly from previous years. This trend is indicative of a regional decline in the use of wood for home heating caused by the current low price of heating oil and gas. Of the 727 cords marked, 460 cords were sold on 59 lots, generating \$5,248 in revenue for the General Fund. This represents a 31% decrease in Home Fuelwood revenue from the previous year and a 35% decrease in the number of cords sold.

The price per cord has not changed from last year's average price of just over \$11.

## MISCELLANEOUS FOREST PRODUCTS SALES

In the Mid-State District, Charles Perna (Mgt. Forester) set up a biomass sale of 21,000 tons of whole tree chips. This operation was performed on approximately 170 acres of red pine plantation where the density of the thinnings was varied by sections to add to the biological diversity.

In the Southeastern District, Austin Mason (Mgt. Forester) prepared a biomass sale at the Myles Standish State Forest. More than 2,008 tons of timber were harvested by whole tree chipping operations. This operation made it possible to do some much needed thinning work in the red and white pine plantations.

# COMMERCIAL SAWTIMBER SALES

<u>District</u>	<u>Revenue Committed</u>	<u>MBF Sold</u>	<u>Cords Sold</u>	<u>Acres</u>
SOUTHEAST	\$ 7,044.66	100.3	-	101
NORTHEAST	42,226.95	343.5	117	75
MID-STATE	52,682.75	200.3	-	210
E.CONN.VALLEY	31,850.85*	523.2	588	184
W.CONN.VALLEY	44,280.32	562.9	512	168
N. BERKSHIRE	14,653.31*	200.4	296	42
C. BERKSHIRE	164,404.71*	1,107.9	328	314
S. BERKSHIRE	179,227.38*	781.5	771	303
<hr/> TOTAL	<hr/> \$536,370.93	<hr/> 3,820.0	<hr/> 2,612	<hr/> 1,397

- \* E.Conn. Valley District figure includes \$21,330.00 in "in-kind services": dozer and backhoe work, gravel, gates, seedlings, planting, site prep., bridge and culvert work, T.S.I., etc.
- \* N. Berkshire District secured approval to extend/expand final FY1988 sale into FY1989 in order to put together a timber sale large enough to cover extensive cost for repair of two main access roads to the sale area in Savoy Mtn. State Forest. Estimated final sale volume at 700 MBF plus 700 cords (mostly Norway spruce saw timber and pulp) with a potential value of \$50,000 to \$60,000 under current market conditions. However, much of the sale value will be provided as "in-kind services" for the work.
- \* C. Berkshire District figure includes "in-kind services" as follows: 2 MBF of speciality sawn lumber for Department use; 2.2 miles of track or skid road were rough graded with water bars and diversion ditches installed, also 4,300 of skid road and 3,000 of track road was rough graded with culverts and geotextile installed in relation to a timber sale on the Granville Forest.
- \* S. Berkshire District reports that contracted road improvements amounted to approximately \$2,500.

# COMMERCIAL FUELWOOD SALES

<u>District</u>	<u>Revenue Committed</u>	<u>Cords Sold</u>	<u>Acres</u>
SOUTHEAST	---	---	---
NORTHEAST	\$ 3,050.00	185	34
MID-STATE	10,016.80	1489	270
E.CONN.VALLEY	4,140.00*	461	41
W.CONN.VALLEY	---	---	---
N. BERKSHIRE	---	---	---
C. BERKSHIRE	---	---	---
S. BERKSHIRE	---	---	---
<u>TOTAL</u>	<u>\$17,206.80</u>	<u>2,135</u>	<u>345</u>

\* E.Conn. Valley District figure includes \$3,584.00 "in-kind services".

## HOME FUELWOOD

<u>District</u>	<u>Revenue Committed</u>	<u>Cords Sold</u>	<u># Lots Sold</u>	<u>Acres</u>
SOUTHEAST	---	---	---	---
NORTHEAST	\$3,545.37	181	34	70
MID-STATE	957.03	48	12	12
E.CONN.VALLEY	371.37	193	7	27
W.CONN.VALLEY	264.00	27	4	4
N. BERKSHIRE	---	---	---	---
C. BERKSHIRE	---	---	---	---
S. BERKSHIRE	110.10	11	2	2
<u>TOTAL</u>	<u>\$5,247.87</u>	<u>460</u>	<u>59</u>	<u>115</u>

\* Northeast District volume figures do not include an additional 90 cords that were marked but not sold, and an additional 16 lots that were marked but not sold.

## TOTALS - FOREST PRODUCTS SALES

<u>Type of Sale</u>	<u>Revenue Committed</u>	<u>MBF Sold</u>	<u>Cords Sold</u>	<u>Acres</u>
Comm'l Sawtimber	\$536,370.93	3,820.0	2,612	1,397
Comm'l Fuelwood	17,206.80	---	2,135	345
Home Fuelwood	5,247.87	---	460	115
<u>TOTAL</u>	<u>\$558,825.60</u>	<u>3,820.0</u>	<u>5,207</u>	<u>1,857</u>



## SPECIAL PROJECTS

The following projects highlighted are just a few that were participated in during the past year.

Austin Mason (Southeastern District) worked closely with the University of Massachusetts and the U.S. Forest Service on the issue of stressed and dying trees. He demonstrated the condition of the trees to UMASS and U.S.F.S. personnel through on-site inspections of stands on Cape Cod, in Myles Standish State Forest, and at Shawme-Crowell State Forest.

William Rivers (E.Conn.Valley District) acted as guest lecturer to students of a continuing education forestry class at the University of Massachusetts. He also worked with UMASS faculty on ways to improve the Department's forest inventory system.

Joanne Nunes (W.Conn.Valley District) worked on the Women in Natural Resources committee to sponsor programs on the North American Indian and Land Use as part of the New England Society of American Foresters (NESAF) Annual Winter Meeting. The committee met a number of times through the year to develop an ongoing program for women in the natural resources fields.

The Central Berkshire Management crew opened up a large vista on October Mtn. State Forest so that the mountains of Northern Berkshire County could be seen from Schermerhorn Road.

Conrad Ohman (Southern Berkshire District) marked and sold three timber sales designed to introduce cable logging technology to the area, and assisted in the development of an all day workshop on cable logging, which was a requirement of the timber sale contracts. These sales have generated many phone calls and letters requesting information on the suitability of this



technology and are being studied under a research project by the University of New Hampshire.

Several management foresters participated in setting up and manning forestry displays or booths at various county fairs or The Big E.

## FOREST PRODUCTS MARKETING & UTILIZATION

The Bureau's FPM&U program is responsible for providing assistance in developing and locating markets for the State's forest products and for achieving the highest possible utilization of those products. The FPM&U Specialist, RC&D Forester and M&U Forester work with landowners, and primary and secondary wood processing industries to achieve these goals.

### PERSONNEL

Jim MacArthur, FPM&U Specialist since 1980, was promoted in August of 1987 to Chief of the Bureau of Shade Tree Management and Insect Pest Control. Doug Leab was promoted from the RC&D Forester position to fill this vacancy. Ann Marie Loud, Assistant Management Forester in Southern Berkshire County, was promoted to the RC&D position and began her new duties in November.

David Fraser, M&U Forester, was promoted to the position of Administrative Assistant in charge of land use permits for the Division in November 1987. This position was filled in January by Tracy Kremer who worked on a number of projects before joining the U.S. Forest Service in Oregon in May of 1988.

### NORTHEAST WOOD PRODUCTS EXPOSITION

The Third Annual NEWPEX Trade Show was held in Boston, February 2-4, 1988. All members of the FPM&U program, including Jim MacArthur and Dave Fraser as Chairman and Executive Clerk respectively, were involved in the planning and operation of the show.

Relying heavily on regional cooperation, the trade show offers small and medium sized wood product firms an opportunity to

market their products to a wide audience of potential buyers at reasonable cost. The 1988 show saw some 700 attendees visit the show despite a snowstorm which effectively shut down the city on opening day. DEM provided information on Massachusetts wood product industries at one booth and made a second booth available to the Berkshire Pioneer RC&D area for use by Western Mass. companies.

Planning is now underway for the 1989 show to be held in Hershey, Pennsylvania with Doug Leab serving as Vice-Chairman of NEWPEX, Inc.

#### WOOD/COAL PROJECT

The FPM&U staff continued to promote the use of wood, in the form of biomass, as an industrial fuel in Massachusetts. Dave Fraser with assistance from foresters Austin Mason and Joe Smith led representatives of four coal burning industries and the University of Mass. at Amherst on tours of wood and wood-coal burning facilities in several states. Efforts are now focused on providing information on wood fuel availability to U. Mass. for use in the current study and design of a new boiler plant for that facility. The project funded by the U.S. Forest Service is intended to develop markets for the abundance of low quality timber in Massachusetts forests. Expanded demand for wood chips as fuel will create opportunities for improved timber management, particularly in light of the depressed residential fuelwood market.

#### EASTERN WHITE PINE MARKET DEVELOPMENT

Another project funded by the U.S. Forest Service is being



carried out in conjunction with the Massachusetts Wood Producers Association, Eastern Chapter. Designed to increase public recognition of White Pine as a native species with many uses, the project includes production of a brochure describing White Pine characteristics and products. The brochure, which shows White Pine in a variety of applications, will be distributed through retail lumber outlets. The project will also fund a booth promoting Massachusetts White Pine producers at the 1989 NEWPEX show.

#### YANKEE FOREST DIRECTORY

As part of the Yankee Forest project, a new Directory of Secondary Wood Product Manufacturers, in Massachusetts, Connecticut, and Rhode Island has been produced. The directory lists 803 firms, including 561 from Massachusetts, who produce finished or semi-finished wood products. It will be used to help sawmills in the state find new markets for their products, and to answer inquiries from firms looking for supplies of various manufactured wood products.

#### INDUSTRY STUDIES

The FPM&U staff participated in the advisory committees for two studies of the State's forest industries. One was a marketing study conducted by Co-Operative Extension and the Executive Office of Communities and Development as an outgrowth of the Northern Tier Project. This study focused on market opportunities for Western Mass. forest product firms and the role of various State Agencies and Industry Associations in strengthening this portion of the regions' economy.

The second study was conducted by the Massachusetts Land Bank and was a result of the Mature Industries Legislation developed by Jim MacArthur in 1986 and filed by Senator Robert Wetmore. The study focused on financing needs and barriers to the wood products industry.

It is hoped that the two studies will result in greater recognition of the State's forest industries and provide new opportunities for strengthening the various industry segments.

The FPM&U staff will be working closely with agencies and industry groups to develop and implement recommendations as a result of these studies.

#### ADDITIONAL PROJECTS

The FPM&U staff continue to be responsible for responding to a wide range of inquiries about Massachusetts forest industries, forestry programs, and forest resources. Several written and telephone requests for such information are received each week.

In addition to attending regular meetings of the Massachusetts Wood Producers Association and Massachusetts Association of Professional Foresters, personnel participated in meetings of the Northeast Lumber Manufacturers Association, and a regional meeting of FPM&U staff from the six New England states and New York.

Staff members also assist with activities of the Massachusetts Christmas Tree Association, and Massachusetts Tree Farm Committee. They also perform a number of Bureau and Division administrative functions.

## RESOURCE CONSERVATION AND DEVELOPMENT

The RC&D program promotes technical advances and provides support for the wood products industry located in the four western counties of Massachusetts (Franklin, Hampshire, Hamden and Berkshire). The following narrative outlines current RC&D projects and their status.

During FY88 the RC&D program recognized National Forest Products Week (FPW) during October 1987 by presenting a legislative mill tour and research demonstration including the appropriate press release materials. In coordination with many other public and private agencies Ann Marie Loud, RC&D Forester, began planning last November for an expanded "celebration" approach to FPW October 1988. It is our goal to create a positive image of the forest products industry and enhance the general awareness of the value of our Massachusetts' forest resources. Publicity for the week will be accomplished through press releases, newspaper inserts, grocery store circulars and a calendar listing brochure of 40 guided activities including primary and secondary mill tours, forest management demonstrations, interpretive and recreational hikes and wildlife management tours. We have mustered the support and interest of the entire forestry community and are excited about the potential for a gradual improvement in social attitudes toward the forest resource and the industry it supports.

Ann Marie designed and presented three workshops. The first was a cable yarding demonstration at Beartown State Forest that was attended by 90 foresters, loggers and landowners. The demonstration was part of a commercial timber sale contract with Ruschin Ceotinkuprulue. The second workshop was a series of



chainsaw safety sessions attended by 80 operators and presented by Tilton Equipment Co. Third, Ann Marie scheduled an interpretive training session intended to guide DEM, MDC, AMC and NAS interpreters toward a balanced interpretation of all of the forest resources and wise resource management.

The compilation of data collected on Chapter 132 forms is complete for Berkshire County and is in progress for the rest of the RC&D area. Harvest volumes by species and landowner characteristics will soon be available to the industry for application to all stages of planning and decision making.

Ann Marie also spent time attending the following: TRAINING WORKSHOPS - Hardwood Lumber Grading, Dry Kiln Operation, Forest Product Exports and DBASE III computer programing; CONVENTIONS - Northeast Wood Products Expo and Society of American Foresters.

## FOREST RESOURCES PLANNING PROGRAM

The primary goal of the program is to prepare, implement and update the Massachusetts Forest Resources Plan. This Plan provides policy and program direction for the Division of Forest and Parks and also the Commonwealth's portion of the Federal Forest and Rangeland Renewable Resources Planning Act (RPA) efforts. The program is directed by Dr. Muriel E. More

During FY88, program efforts focused on monitoring the implementation of the state forest plan completed in FY86 and preparing the Division's Generic Environmental Impact Report (GEIR) on forestland management practices. The plan is currently being implemented by the Division, other public agencies and private organizations. A report documenting the Division's activity in plan implementation is in progress.

Most time, however, was spent working on the Generic Environmental Impact Report (GEIR) effort. According to the Massachusetts Environmental Protection Act (MEPA) regulations, the Division must periodically update its GEIR of forest management practices on Division lands. While past GEIR's have dealt only with forest management practices on Division properties, the current effort is also examining the impacts of timber harvesting on water quality. This project is scheduled for completion in fall, 1989.

To assist the division with the GEIR, MEPA established a fifteen member technical advisory committee which formed four sub-committees to deal with specific aspects of the project. These aspects include the Ch. 132 forest cutting practices act program, the statelands management forestry program, the use of off-road vehicles (ORV's) on logging roads and water quality. Three of the

sub-committees are chaired by Division personnel; Douglas Poland, Regional Forest and Park Supervisor (Statelands Sub-committee), Charles Dane, Chief, Recreation Bureau (ORV Sub-committee), and Joseph Smith, Service Forester and Statewide Ch. 132 Coordinator (Ch. 132 Sub-committee). In addition, ten other Division administrators and foresters are serving on the four sub-committees. Major highlights during FY88 include obtaining \$105,000.00 dollars for project research and data analysis and initiating eight research studies and surveys through the sub-committees that will be completed during the summer and fall 1988. Results from these studies will form the basis for the project recommendations and report. Preparing the draft GEIR for submission to MEPA will be the major focus of the Forest Resources Planning Program during the next fiscal year.

In addition to coordinating the GEIR project, Dr. More continued to serve as the Division coordinator for the Massachusetts Prime Timberlands Mapping Project. Utilizing a site classification system that enables both hardwood and softwood potential productivity, the University of Massachusetts, Department of Forestry and Wildlife Management has been under contract to inventory and map commercial forestland in Massachusetts. To date, work has been completed in all counties except Worcester, which will be finished when necessary soil surveys are available from the USDA Soil Conservation Service. In the meantime, the University will continue to verify the accuracy of the mapping system and to distribute mapping products to Division administrative regions, Massachusetts' communities and other states. In addition, Dr. More has continued to participate on the Natural Resources Planning Committee of the State



Commission of Soil, Water and Related Resources which is overseeing the development of a five year natural resources plan for Massachusetts and on the Information and Education Subcommittee of the tri-state Yankee Forest Cooperative Project. Moreover, she continued working on the Supply/Demand Subcommittee for the 1988 Statewide Comprehensive Outdoor Recreation Plan and also continued to serve as an Adjunct Assistant Professor of forest policy and planning in the Department of Forestry and Wildlife Management at the University of Massachusetts.

Finally, Dr. More gave an invited presentation on the GEIR project at the New England Society of American Foresters Annual Meeting and also attended the twenty state Northeastern Forest Resource Planners Association Conference where she organized a panel on trends in private forestland management.

## COMPUTER PROGRAMMING & DATA PROCESSING

Region 1 Service Forester, Joe Perry, attended a four day MultiMate beginners and advanced training session. Later in the year, Joe Perry and John Clement organized and published an informational Chapter 61 booklet using MultiMate.

Joe Perry with assistance from Donna Tripp, created a Lotus menu driven recreation budget worksheet. This worksheet will print out a summary report for the '12' subsidiary, a detail report for individual area's indicated by user, or a detail report for all areas.

With the assistance of Pam Moniz, Forester Perry created a Lotus menu driven job roster program. Also, with the assistance of Deanna Brady, he created a Lotus payroll worksheet to send weekly payroll information to the Boston office via modem.

Joe Perry with the assistance of John Clement, statewide Chapter 61 Coordinator, created a Lotus statistical worksheet for preparing Chapter 61 data for the annual report. This project took about five man days. Five additional man days were used in maintaining the Chapter 61 database, printing reports by owners name, case number and town along with the printing of mailing labels. Joe Perry created a Lotus worksheet to store information about and print mailing labels for the licensed loggers and wood producers of the eastern part of the state. He spent two man days setting up Lotus worksheets to store the landowners name, addresses, and the amount of forest acres in the Yankee Pilot Program.

Joe also spent about ten days training the regional personnel in the use of the computer and software. About five days were spent ordering computer supplies, equipment and

maintaining the computer with the help of Bill Cote, the Norton Utilities , Mace Utilities, Dysan Interrogator and Spinrite programs.

In Region 2, Assistant Forester Harry Penniman attended a one day MMARS program training session along with a two day DBASE III training session. Harry also created a Lotus Eastern White Pine diagnostic tally worksheet for tracking demonstration plots over time.

In Region 3, Service Forester Joe Smith reports that the highlights of the year were two crashes of the hard drive which led to the replacement of the hard drive and the controller board.

Mike Fleming received training in Lotus and DBASE III through MOSES. Susan McNamara and Ted Butler received training in the MMARS program.

A Chapter 132 spreadsheet for generating monthly reports to the Boston office was developed and used for this fiscal year. No problems were encountered.

Region 3 received the new DBASE III program and had it installed. Work has begun sporadically on designing databases for cutting plans and harvesting licenses. The fact that Region 3 has no one who can devote much time to these projects has greatly slowed down the process. The end result is that the personnel are not adequately utilizing the computers.

Joe Smith reports that most of his time on the computer was spent troubleshooting and that he has not been able to devote the necessary time for upgrading the system due to other responsibilities.

In Region 4, Assistant Forester Bill Cote traveled to the other Regions to maintain and repair the Department's computers



with the assistance of the Norton Utilities, Mace Utilities, Dysan Interrogator, SQZ Plus, and Spinrite programs. He made some modifications to the Lotus payroll program that he created last fiscal year and distributed it for use in Regions 1, 3, and 5. He was also able to convert the Lotus harvester license database worksheet to DBASE III.

In Region 5, Management Forester Conrad Ohman reports that he used the MultiMate program to help him write the Greylock Glen G.O.A.L.S. management plan. He also reports that when time was available, he gave computer hardware and software training to Regional personnel.

RC&D Forester Ann Marie Loud reports that she attended a DBASE III training session early this spring. She now uses DBASE III for new database projects and is in the process of converting old Lotus files to DBASE III. Mailing label lists for Massachusetts sawmills and the Massachusetts Wood Producers Association (Western Chapter) are now available on DBASE III. Ann Marie is working towards complete compatibility with the inventories currently available in the Primary and Secondary Wood Producer Directories.

Although some persons received two or three days of software training this year, it is still far short of the average of *sixty hours of training required per software package* to become adequately proficient at using our computers. Until the problem of inadequate time for training is addressed, we will continue to fail in using our computers to their fullest capacity.

## ATMOSPHERIC DEPOSITION

On-site examinations of stressed areas determined that all but one area, 2000 acres on Mount Greylock, could be explained as the result of normal insect damage or disease. Coincidentally, Mt. Greylock is one of a few areas in Massachusetts with an elevation high enough to intercept significant acid deposition from clouds. It also has one of the few stands of red spruce forest (42%; the remainder are maple, yellow birch, paper birch and other species). On Mt. Greylock, spruce mortality of 15-36% was fairly evenly distributed among size classes; for hardwoods, it ranged from 0-22% being the highest in older trees. Sixteen percent of the red spruce appear to have died within the last 10 years, 46% dying prior to that. Preliminary research results suggest that either drought and/or air pollution may be the cause of tree death here. It is clear that the high elevation forests in western Massachusetts are experiencing the same symptoms as other such forests along the Appalachian chain.

Further Massachusetts Acid Rain Research Program (MARRP) research by Dr. Gretchen Smith on the observed decline of red spruce on Mt. Greylock is underway as part of Massachusetts' cooperation in the National Forest Response Program - National Vegetation Survey. As part of this effort, sophisticated air quality monitors have been established on Mt. Greylock, and an intensive study of the relations between symptoms and pathogens, insect pests, and parasites is underway.

Stands of red pine and white pine studied in 1955 and 1965 were revisited and growth measurements taken. Approximately one-third of the resurveyed stands showed significant reductions in growth rate ranging from 20% to 50%, even though site conditions

are considered good. Sites with the highest percentage of reduction have both a decline in growth rate and high tree mortality, suggesting the possibility that air pollutants may be eliminating the most sensitive trees.

The health and vigor of sugar maples throughout New England is also in question. Working with the Massachusetts Maple Producers, MARRP researchers have made a preliminary survey of 24 sugar lots. Early results indicate that 8% of the sugar lots were in good condition, 75% in fair condition with obvious dieback present, and 17% in poor condition with serious dieback and death of trees.

In many respects, the current studies of potential forest impacts of acid deposition focus on gross mortality or productivity, as did the earlier studies of acid deposition damage to agricultural crops. Acid deposition may cause much subtler changes in plant health with equally disastrous environmental effects. For example, if acid rain deposition and air pollution causes changes in the pollination process, either by reducing the viability of pollen or the success of pollination, or if it provides selective pressure in favor of a particular type of pollen, years of careful horticultural effort may be negated. Varieties that have been bred for high productivity or resistance to pests may yield reduced pollination success, thereby changing the long term population structure of forests without clear mortality.

MARRP researchers are investigating the effects of acid deposition and ozone on the pollination success of many horticulturally important trees and shrubs. American elm, Norway maple, American beech, linden, red and sugar maple, and others



have been tested for sensitivity to ozone. Even within a species, tolerance varies. Of five lilac cultivars, tolerance to ozone varied by 25-fold.

Research on the effects of acid deposition and air pollution on forests and other plants is in its infancy, but a vital first step has been taken by the Commonwealth in establishing baseline data against which future developments can be compared.

## FORESTRY REVENUE

The Forestry account derived income from several sources -- namely from federal grants, forest products sales from state lands, issuances of timber harvester licenses, filing fees and rents/leases. These monies totalled \$726,927.09 for FY1988.

The following is an analysis of the Bureau's receipts:

<u>State Lands and Service Forestry Income</u>	<u>Amount</u>
Timber Harvester Licenses	\$ 6,220.00
Forest Products Sales*	558,827.60
Chapter 61 Tax Law Filing Fees	11,546.26
Rents/Leases	16,627.23
Sub-Total	\$593,221.09
 <u>Federal Grants</u>	
RC&D (Resource Conservation & Development)	25,000.00
RFA (Rural Forestry Assistance)	16,653.00
FRP (Forest Resources Planning)	5,000.00
FIP (Forestry Incentives Program)	4,066.00
ACP (Agricultural Conservation Program)	12,987.00
Yankee Forest Coop.	60,000.00
Pine Mkt. Study	10,000.00
Sub-Total	\$133,706.00
Total	\$726,927.09

\* Includes "in-kind services" with a dollar value of over \$27,414.00 from several sales.





ANNUAL REPORT  
FISCAL YEAR 1988  
BUREAU OF SHADE TREE MANAGEMENT  
AND PEST CONTROL

James M. MacArthur, Chief

INTRODUCTION

Fiscal year 1988 was a year of change for the Bureau of Shade Tree Management and Pest Control. It started with the retirement of Charles S. Hood as Bureau Chief along with several other personnel changes. 1988 was a year in which the implementation of Chapter 765, Acts of 1985 was begun. The Bureau developed and incorporated an Official Bureau Policy, C.M.R. 400 Series, in the Division of Forests and Parks Policy Directive Handbook. Ten new pieces of equipment, which consisted of five Aerial Lift Trucks and five Stump Grinders, were purchased to allow the Bureau to more effectively and efficiently conduct Shade Tree Management activities on Division Properties. The Beautification Program and Arbor Day Program also became integral programs within the Bureau.

These changes and additions inclusive with other Bureau activities are fully addressed in the following report.

PERSONNEL

Charles "Stan" Hood retired as Bureau Chief after having served for twenty-nine years in this post. Mr. Hood came to the Bureau of Insect Pest Control, as it was called at that time, on March 25, 1959 and retired on June 27, 1988. During his tenure Mr. Hood led the Bureau through two major outbreaks of Gypsy Moth, A municipal control and removal program of Dutch Elm Disease afflicting American Elm trees, and a change in the Bureau's name and direction.

James M. MacArthur replaced Mr. Hood as the Bureau Chief on August 27, 1987. Mr. MacArthur was formerly the Forest Products Marketing and Utilization Specialist for the Bureau of Forest Development and served in that position for eight years.

PERSONNEL (cont)

He brought with him to his new position a wealth of knowledge and background in organizational development, coalition building and public administration.

In March of 1988, Mr. Douglas Trefry, Assistant Bureau Chief also retired after forty plus years of service to the Division of Forests and Parks and the Bureau. Mr. Trefry worked his way up through the Bureau's career ladder and had held the position of Assistant Bureau Chief for eighteen years. He was known as an expert on Gypsy Moths and Oak Leaf Tier.

Mr. Ernest DeRosa replaced Mr. Trefry in this position. Mr. DeRosa is a valuable addition to the Bureau because of his extensive knowledge on Shade Tree Management and Shade Tree Insects and Diseases. Prior to his appointment as Assistant Bureau Chief, Mr. DeRosa held the position of Urban and Community Forestry Planner.

Other personnel changes within the Bureau include several changes in the Department's Region Five area. Mr. Frederick Hayward left the bureau as District 8 Supervisor to take a position with Northeast Utilities. Mr. Kenneth Gooch was promoted to fill this position, leaving a vacancy at Tree Crew Foreman for the same Region. Mr. Charles Tatten was promoted to this position from Tree Climber and Mr. Joseph T. Majchrowski back filled the tree climber position. Also, in Region 5, Cindy Haskins left the Bureau clerical position and Laura Lei Hanson filled the position.

In Region 1, Mr. Richard Beaudet left the Tree Crew Foreman position to take a job in the private sector and Mr. Guy LaChance was promoted from Tree Climber to this position. Mr. LaChance's Tree Climber position was back filled by Mr. Joseph Asiaf.

In Region 2, a vacant Tree Climber position was filled by the hiring of Mr. Christopher Magazu.

## BUREAU POLICY

Official policy statements concerning this bureau have been established in the Division's Policy Directive Handbook. These directives fall within the 400 series and cover: Bureau's responsibility for Program Administration, responsibility regarding Natural Disaster Emergency Situations and; Herbicide Use in Controlling Unwanted Vegetation on Department Owned Properties.

Besides having the Bureau Policy, Deputy Commissioner Robert Kumor, Division of Planning and Development and Director Gilbert A. Bliss, Division of Forests and Parks entered into an agreement. It gives District Supervisors of the Bureau of Shade Tree Management and Pest Control a role in sitework contracts involving the planting of trees and shrubs on Department owned facilities. Bureau staff will serve on the project development team for all site work design and construction projects that are under the supervision of the Division of Planning and Development. On this team, they will be responsible for; Review of the selection of tree and shrub species, inspection of plant material, inspection of the planting of trees and shrubs; and inspection of plant materials prior to the end of the contract period.

## INSECT/PEST ACTIVITIES

### GYPSY MOTH

The total defoliation from the Gypsy Moth for the Commonwealth of Massachusetts for 1987 was 116,007 acres. This figure is a drastic reduction from the 404,538 acres in 1986, (Map-A).

These figures may differ from those of the U.S. Forest Service because the State records defoliation of less than 30%.

The largest degree of defoliation in the State was concentrated in Southern Worcester County and Southern Bristol County. Both of these areas border the State of Rhode Island on the East and North.





## GYPSY MOTH (cont)

This year's preliminary egg mass inspections and moth trap counts would indicate a decline in the larger infested areas, but a slight build up in Western portions of the State, along the Holyoke Mountain range and Plymouth County in the East.

Unlike last year, Cape Cod and some areas of Norfolk County experienced an unusual phenomenon, the Gypsy Moth egg hatch was normal and on schedule. Feeding progressed up to a point of some defoliation showing. This season, the summer was hot and dry with very little rain. There was a short period of high humidity when the larvae were in the 2nd and 3rd instars. In past years, these conditions would have activated the virus in heavy populations causing a collapse within the center of these areas, and on the periphery where populations were lighter, leaving healthy viable egg masses for the following year. You might call this "the doughnut effect", but this year was different especially on Cape Cod.

Feeding slowed down during the 4th and 5th instars, The male larvae made it into pupation and on to the moth stage. The female larvae, however, usually having an additional instar, appeared to be affected by the virus. The larvae were observed gathering on the bark at the base of trees, stretched out and hanging by their prolegs but not drooping or u shaped like usual virus symptoms. Although these conditions suggested that this was some form of virus, it was entirely different from past years. This unusual situation was observed over the entire Cape and other parts of the State.

The University of Massachusetts Entomology staff, who had numerous Gypsy Moth projects over the state, noticed the same condition and also found an abundance of Parasetigena silvertris and other parasites, along with the virus.

Prior to this year's infestation, the Department of Environmental Management was available to any communities, upon request, for technical assistance, in the form of egg mass counts, mapping spray areas, acreage estimation and public information. Control measures taken by the towns this year was limited to ground spraying and there was no participation under the Cooperative Forestry Assistance Program,

## GYPSY MOTH (cont)

### Gypsy Moth Suppression.

The Department of Environmental Management also did some limited ground spraying within some of it's selected Forest and Parks areas, Dipel Bt was applied by truck mounted mist-blower, at a rate of 16 BIUs per acre. There appeared to be some control, but the virus was evident also.

The Cooperative Gypsy Moth Trapping program with the University of Massachusetts is continuing under the direction of Professor Joe Elkinton. The purpose is to develop a Gypsy Moth Trap that can be used to supplement egg mass counts in an effort to detect next year's Gypsy Moth problem areas.

Preliminary findings indicated that the downward trend of populations continued for 1988.

### GYPSY MOTH FOCI

In December a meeting was held in Springfield Vermont with the USFS, Vermont Forest Protection, the University of Vermont, Mass. DEM and University of Mass. about the possibility of treating small gypsy moth infestations before they had a chance to become widespread. A followup meeting was held in Massachusetts in January to firm up plans for this project. In Massachusetts there are a number of sites which defoliation records indicate build up prior to surrounding areas. Four of these areas in the Conn. Valley were selected as possible research sites. Since no area was in outbreak phase it was decided to monitor these sites. A work plan was developed by the DEM Crew in Region 4. Within each site plot lines were established along compass points. Along each line plots 45 feet in diameter were established every 100 yards. Egg mass counts were done at each plot and in the odd numbered plots all trees 3 inches or greater in diameter were burlaped. This fall data will be collected and given to University of Massachusetts.

### OAK LEAF TIER - OAK LEAF ROLLER COMPLEX

This year approximately 361,978 acres of land in Massachusetts was under stress and defoliation by a complex of Oak Leaf Tier, *Croesia semipurpurana* and Oak Leaf



#### OAK LEAF TIER - OAK LEAF ROLLER COMPLEX (cont)

Roller, *Archips semiferanus*, see Map B. The most widespread area hit with defoliation ranging from very light to very heavy on individual trees and stands of trees was in Barnstable, Bristol, and Norfolk counties. In Franklin County, or more specifically, the towns of Warwick, Wendell, and Sunderland, the Oak Leaf Tier is the only insect of this complex causing any problems. Approximately 11,000 acres were defoliated by this insect.

During FY 89, the Bureau of Shade Tree Management and Pest Control initiated an Oak Leaf Tier Spray Project on 3,000 acres of State Forest in Warwick, MA.. An Economic Analysis, determination of spray blocks, Environmental Assessment and Public Hearings were conducted. The spray projects was to utilize Dimilin (diflubenzuron) using an aerial application with helicopters. The project was to be funded through a federal grant.

This project was cancelled in May of 1988 and postponed to the spring of 1989. The reason for the postponement was that several town's people and environmental groups were adverse to utilizing Dimilin since they felt that some of their questions were not satisfactorily answered. As a result of this situation, a task force advisory group was organized comprising the original working group and the aforementioned groups to reanalyze the Environmental Assessment and make recommendations for FY 89.

#### PEAR THRIPS

Pear Thrips, *Taeniothrips inconsequens*, has been seen and identified statewide but survey studies were limited to Berkshire, Hampden, Hampshire, and Franklin counties where the danger was most severe. A total of approximately 200,000 acres had extensive defoliation but as Map-C indicates, the insect was positively identified at increased levels throughout the entire shaded area. Currently there are no recommended controls for this insect.

#### BACKGROUND

The Pear Thrip, a native to Europe was introduced to California as early as 1904 and was later discovered on the East Coast. Most of the research on the Pear

## BACKGROUND (cont)

Thrip has been done with the fruit industry (plum, cherry, apple, and pear) where it is economically important. In Europe this insect is associated with woodland vegetation.

Only female insects are present in this Country and each female is capable of laying approximately 130 eggs each. These eggs are laid mostly on the petioles of blossoms and or on the mid-rib of leaves. Small brown scars develop where egg deposition occurs. The eggs hatch in 10-14 days and the young larvae feed for 2-3 weeks, before falling to the ground to pupate. The total time spent above ground in all life stages is 4-6 weeks. In the spring the adults began to emerge when the soil temperature reaches 40-45° F. and emergence takes place over a one month period (with the majority emerging in the first 2 weeks).

The damage of this insect appears as a dwarfing and distortion of the foliage. The leaves appear stippled with a yellow-green to brown color. This damage is caused by the insects rasping of plant tissue to feed on plant liquids. Heavy infestations can cause complete defoliation. It is estimated that as few as 5 adults per leaf are enough to cause death to Sugar Maple foliage. It has been observed that where heavy defoliation occurs no visible seed crop is produced. It is believed that this happens because the thrip damages the flowers.

## CURRENT STATUS:

The Pear Thrips was first discovered in Massachusetts in 1987 when it defoliated 108,193 acres of Sugar Maple (*Acre Saccharum*). In 1988 defoliation was again noted and an aerial survey was scheduled to map the defoliation. This aerial survey was postponed several times due to poor visibility or the unavailability of an aircraft. On June 27 the survey was completed with 139,026 acres defoliated. This figure is conservative because some of the trees had refoliated. The survey was limited to Berkshire, Hampden, Hampshire, and Franklin Counties where the damage was the most severe. Reports have been received of damage on shade trees and small Sugar

#### CURRENT STATUS: (cont)

Maple stands throughout the State.

There probably will be dieback and mortality in the stands which were severely defoliated this season mainly because of the lack of moisture during the period when the trees were trying to refoliate. There most likely will be a reduction in fall color, because of fewer and small leaves on the trees which refoliated. What will happen with the sugar production is unknown but Dr. David Houston, USFS believes it will be lower in both quality and quantity.

It has long been known the effects of defoliation on tree vigor can be measure by determining root starch content. A visual technique which is both accurate and easy was developed by the Forest Service in the mid 70's. This technique has been successfully used by Bureau of Shade Tree Management personnel in determining stand conditions after defoliation by Oak Leaf Tier for several years.

#### CONCERNS

The main concern is what effect will this insect have on the Sugar Maple stands. This can not be easily answered because of the many unknowns ie: (1) How severe were the trees defoliated, (2) How long were they defoliated (how many years), and (3) What other problems do the trees face; drought, other insect or disease attack.

#### CURRENT RESEARCH

Very limited research has been done with this insect and its effects on Sugar Maple. What research has been conducted was done in Pennsylvania and Vermont. Currently Vermont has a very active research program with emphasis being placed on the development of a prediction system of future outbreaks.

#### RECOMMENDED ACTION

°Establish Pear Thrips Advisory Working Group.

Members should be at least: Bureau of Shade Tree Management Personnel (3); U.S.F.S. Pest Management Program (1); U. of Mass Entomology Dept. (1) and; Mass. Sugar Maple Producers Assoc. (3).



RECOMMENDED ACTION: (cont)

° Research Study on Existing Research.

This could be done by U. of Mass. Entomology Department through the existing cooperative agreement.

° Future Insect Population Prediction Research Study

This is necessary to establish a uniform system to determine each subsequent year population level potential. Once a system is developed it would be useful to notify landowners, municipalities, homeowners and sugar maple syrup producers of outbreak population potentials. This type of research will require federal or state grant monies and staff.

° Sugar Maple Root Starch Analysis

These analyses can be done by the Bureau of Shade Tree Management and Pest Control. They have the experience in conducting root starch analysis from research they conducted on Red Oak Trees affected by Oak Leaf Tier.

These analyses would be extremely helpful to the Massachusetts Sugar Maple Producers Association. It would give them the opportunity to better determine whether or not to tap their sugarbush in the forthcoming year.

This project can be handled by existing staff and equipment. Since existing staff time available for this project is slim, then some other projects/ programs will have to be put on hold. Additional staff assistance through existing monies or new state/federal grants would be ideal.

### OAK SKELETONIZER

The Oak Skeletonizer, *Bucculatrix Ainsliella*, is a small moth. The caterpillar feeds on the surface of oak leaves leaving the veins of the leaves untouched. It was reported this year as heavy in Essex, Bristol, and Norfolk counties and patchy in Middlesex county, See Map-D.

Most of the public's concern relative to this insect is not so much the feeding on the trees but the fact that when they are ready to pupate they spin down on silken threads. Their numbers are so great that it is difficult to walk under the tree without being covered with them. Their habit of forming small, white, ribbed cocoons on almost anything including automobiles, lawn furniture, etc. is also very annoying.

### EASTERN TENT CATERPILLAR

The eastern tent caterpillar is a late-spring defoliator of many hardwood tree species. In addition to the damage caused by defoliation, the dirty silken tents, which are filled with frass and cast larval skins, can ruin the appearance of ornamentals. The preferred hosts of this insect are wild cherry and abandoned apple trees, but it also attacks many other species of forest, shade and fruit trees.

This years' infestation of this insect occurred heaviest in Essex, Middlesex, and Eastern Franklin County, see Map-E. This insect needs monitoring on a yearly basis.

### BROWN TAIL MOTH

The Brown Tail Moth, *Euproctis Chrysorrhoea*, once found widespread over the Northeast is now concentrated on Cape Cod and on the Islands in Casco Bay in Maine. Most of the Cape population of this pest is under control of the Cape Cod National Seashore, See Map-F. They are continuing to spread from Provincetown to Wellfleet causing major concern regarding dune erosion and health problems. Some people contract a severe rash from the caterpillar hairs.

### NANTUCKET PINE TIP MOTH

The Nantucket Pine tip moth, *Rhyacionia frustiana*, attacks nearly all species of

#### NANTUCK PINE TIP MOTHS (cont)

pine in the northeast, (except white pine), it prefers scots and shortleaf pines. Young stands are the most vulnerable, with attacks resulting in height growth reduction, stem deformities, poor cone crops, and occasional mortality.

This insect has caused noticeable defoliation all over Cape Cod, Barnstable County, and has caused some mortality in smaller trees. See Map-F for extent of insect distribution.

#### FALL WEB WORM

The fall web worm, *Hyphantria cunea*, have been identified throughout Middlesex county in increased numbers, see Map-F. This insect although a defoliator does not inflict serious damage to the 100 plus host trees since it does defoliate in the late growing season. This insect is only considered serious due to esthetic values and the fact that the insect develops extensive unsightly webs.

#### FALL CANKERWORM

The fall cankerworm, *Alsophila pametaria*, is also known as an "inchworm" and is a defoliator of oak, cherry, ash, maple, hickory, beech, and yellow birch. They skeletonize their host tree and can cause severe esthetic damage to shade trees, as well as, mortality to both shade and forest trees. This insect caused defoliation in Braintree, Weymouth, and Quincy with heavy defoliation in Falmouth, see Map-F.

#### OTHER INSECTS/DISEASES

Other forest and shade tree insects that were closely monitored during FY 88 were: Red Pine Adelgid, *Pineus boernerii*; Pine Needle miner, *Exoteleia pinifoliella* and; *Pinea diplodia*. For location of the insects/diseases see Map-F.

#### SHADE TREE DISEASES

##### DOGWOOD ANTHRACNOSE

The Dogwood Anthracnose, *Discula* sp., has occurred statewide in Massachusetts and is brought on by cool wet spring weather. If the pattern of cool wet springs continues next year, the Dogwood Anthracnose problem will continue to spread.



## DOGWOOD ANTHRACNOSE (cont)

At Maudslay State Park approximately 200 acres of dogwoods are affected by this disease. A control strategy was started in F.Y. 88 by removing approximately 150 trees that were severely afflicted.

## CYTOSPORA CANKER

The Cytospora Canker affects Norway maple trees usually by girdling large branches so that the crown will show brown dead limbs. This canker is widespread in Massachusetts. Trees most affected by the canker are in urban areas and already under high stress. It is suspected that these conditions will continue and expand if annual summer drought conditions persist. Recommended control of this canker is the careful selection and spacing of Norway maples with other diversified tree species.

## SHADE TREE MANAGEMENT ACTIVITIES

### D.E.M. FACILITIES

Although the Bureau's District Supervisors and Tree Crews have conducted tree maintenance activities, on Department owned properties, on a request basis, there has never been a policy to direct these activities. Between the new Bureau Policy and M.G.L. Chapter 765, Acts of 1985, the Bureau now has well defined responsibilities in Shade Tree Management activities on D.E.M. properties. M.G.L. Chapter 765 states; "In addition to such other duties as may be invested in it by law or by assignment from the director, the bureau shall be responsible for shade tree management, arboriculture service and insect suppression activities on state property."

During FY 88, the Bureau's district supervisors analyzed the Forests and Parks facilities for hazardous needs care within their districts. This analysis served two purposes. The first was to identify tree work to be completed by arboricultural contracts in their respective areas and also to prioritize arboricultural work to be conducted by Bureau tree crews.

The arboricultural contract work will be conducted during F.Y. 89 and will take place at sixteen facilities statewide.

## D.E.M. FACILITIES (cont)

The tree crews, during F.Y. 88, serviced 82 facilities which included: State forests; state parks; heritage state parks; fire towers; Regional offices; swimming pools and; skating rinks. The types of services that were provided include: Tree removals; tree pruning; poison ivy control; weed control; insect and pest surveys; hazardous tree surveys; supervision of transmission line clearings; stump removals; historic site clearance; vista pruning and; opening fire tower observation areas. There was approximately 117 miles of roadside work conducted and approximately 400 acres of Forest and Park work conducted.

## ASSISTANCE TO OTHER AGENCIES

Periodically, the tree crews are requested to provide arboricultural services to other state agencies. During F.Y. 88, the Bureau's tree crews were requested to provide assistance to: Mass. State Police; Mass. Dept, of Public Works; Rutland Heights State Hospital; Metropolitan District Commission; Mass. Dept of Education and; Belchertown State School. The tree crews provided assistance through tree removals, tree pruning, insect and pest control analyses, and insect and pest control eradication work.

## MUNICIPAL ASSISTANCE

IN FY 88, the District Supervisors made a total of 952 municipal visitations with Tree Wardens and other municipal requests to the 351 communities in Massachusetts. These visits consisted of providing Municipal Tree Wardens, Shade Tree Management and Pest Control Supervisors, and other municipal officials with technical information,

Arbor Day programs and Tree City, USA programs. In District 8, Berkshire County, assistance was provided by Bureau personnel in Storm Damage clean-up from a snowstorm on Oct. 4, 1987. The assistance was in the form of hazardous tree removals and chipping of debris.

## EDUCATIONAL PROGRAMS

### ATTENDED

All Bureau personnel are encouraged to attend/participate in educational seminars, workshops, conferences, and field related association meetings, which will help them in career development and technology awareness. There are two annual meetings which all District Supervisors are required to attend and these are the Mass. Tree Wardens and Foresters Association Annual meeting and conference and the Tree Wardens, Arborists, and Utilities conference. Both of these educational programs provide Bureau Staff with an opportunity to learn the latest technology and methodology in the industry, as well as to establish and reestablish relationships with professional peers.

Other meetings attended by various bureau staff include: International Society of Arboriculture meeting; Northeast Forest Pest Council Annual Meeting; Mass. Arborists Association Annual Meeting; National Gypsy Moth Review; Insect and Disease Workshop and; chainsaw safety workshops.

### CONDUCTED

Besides attending meetings and obtaining professional technological information Bureau District Supervisors are also expected to transfer this information to Tree Wardens, other professional groups, and the general public. During FY 88, The Bureau as a whole conducted II meeting/educational programs to more than 400 attendees. Some of the topics discussed were: Chainsaw safety; Lymes Disease; M.G.L. Ch. 765 Inventory Methods; Tree City U.S.A. program; Pear Thrips; Tree Maintenance and; insects and diseases.

An inservice training program was started for Forests and Parks facility managers in the Bureau's of Urban Services and Recreation. These programs are developed by Asst. Chief Ernest DeRosa, Bureau of Shade Tree Management and Pest Control and are intended to help facility managers recognize insect and disease problems; tree maintenance and care; pruning methods and; vegetation management. During F.Y. 88, three workshops were held on insect and disease identification with a total attendance of 63



## CONDUCTED (cont)

managers.

The program and concept was well received.

## ARBOR DAY PROGRAM

The Bureau of Shade Tree Management and Pest Control had the responsibility to coordinate through it's eight District Supervisors all Arbor Day Activities in which the Department had an involvement. The main emphasis of this coordination was to compile information on the various programs, statewide, in which D.E.M. was involved and to find out the needs of these programs for seedling dispersal. The Bureau purchased 10,000 Norway spruce seedlings and dispersed them to Arbor Day program leaders within the Department as give aways to school children and program attendees. The Department had 44 programs statewide and they included Arbor Day puppet shows at Heritage State Parks, Tree City U.S.A. dedications, school programs, and commemorative tree plantings.

## LYME DISEASE

Lyme Disease is a bacterium, (a spirochete) called *Borrelia burgdorferi*. This disease is carried in the bodies of deer ticks, (*Ixodes dammini*) which can transmit the disease to humans, if bitten by them.

The Department of Environmental Management's awareness of the ever increasing threat of Lyme Disease within the Forest and Park system, has initiated a management plan to control this problem.

In July, 1987 the Department contracted with EcoHealth Inc. of Boston, with the assistance of the Bureau of Shade Tree Management and Bureau of Recreation. A survey was conducted at Shawme Crowell State Forest and Scusset Beach State Reservation to determine the existence and amount of deer ticks at these facilities and analyzed for Lyme Disease. The results of the analysis showed that 65% of the ticks collected had the spirochete in them.

## LYME DISEASE (cont)

A control program was initiated in these areas effected. 1200 tubes containing a pyrethroid (insecticide) were dispersed within these areas by Shade Tree Management and Park personnel. Follow up of the results showed a reduction in tick population. continuation of this program for 1988-1989 will take place at Scusset and additional forest and park areas statewide will be surveyed, for the ticks carrying this disease.

## BEAUTIFICATION

The Director of the Division of Forests and Parks had assigned the Bureau Chief of Shade Tree Management and Pest Control to serve on the Massachusetts Beautification Committee and to coordinate Division of Forests and Parks Beautification activities. During F.Y. 88, 75 Division facilities participated in the program statewide. The agency had the Women's Federated Garden Club judge these facilities and select both the top three winners in each Region and the top three winners for the Agency. These nominees are submitted to a statewide steering committee for all agencies involved, who selects the first place winners for each agency.

On May 21, 1988, Governor Michael Dukakis held a breakfast awards ceremony by the Grand Staircase in the State House. This ceremony was held to honor the three top nominees in each Department that participated. The first place winner in each Department receives a trip to California and the second and third place winners receive a Pride In Performance Award. D.E.M.'s winners are: First Place, David Wood, for Sanderson Brook Falls Project; Second Place, Thomas O'Brien, for Beartown State Forest Project and; Third Place, Jerry Ross, Massasoit State Park Project.

The Bureau Chief and Asst. Bureau Chief are coordinating activities for F.Y.89.

## TREE CITY - USA PROGRAM

There are now 20 Massachusetts communities nationally recognized as Tree City U.S.A.'s. During F.Y. 88 Topsfield, Gloucester, and Hanscom Air Force Base were added to attain this number. All three dedications were held during Arbor week. The Hanscom Air Force Base ceremony had dignitaries and 400 school children in attendance. The

## TREE CITY - USA PROGRAM (cont)

Topsfield program had 70 attendees comprised of Public officials and School children. The Gloucester event had 50 school children and public officials present. All three programs consisted of Ernest DeRosa, Asst Bureau Chief, issueing plaques, flags, and signs to the entrance ways to the communities, to the public officials.

Manchester and Wellesley received Special five year Tree City USA recognition awards.

## YANKEE FORESTRY COOPERATIVE PROGRAM

### INSECT AND DISEASE ACTIVITIES

Mr. Russel Larson and Mr. Joseph Lokitis represent the Bureau on the Insect and Disease committee. This committee is involved in establishing a Tri-state Gypsy Moth protection and awareness plot. This plot will be utilized to demonstrate the effects of Gypsy Moth on our forest environment. They will also research and establish within these plots Gypsy Moth control areas.

### URBAN FORESTRY COMMITTEE ACTIVITIES

Mr. Ernest DeRosa represents the Bureau as chairman of the Urban & Community Forestry sub-committee. This committee is involved in increasing public awareness in the Tri-state area of the benefits trees provide to the quality of life in urban areas and the importance of properly managing this valuable resource. Newsletters have been printed and distributed to Tree Wardens in the three Southern New England states. These newsletters cover timely urban forestry issues pertinent to the Tri-state area.



# MASSACHUSETTS

CITY AND TOWN LINES

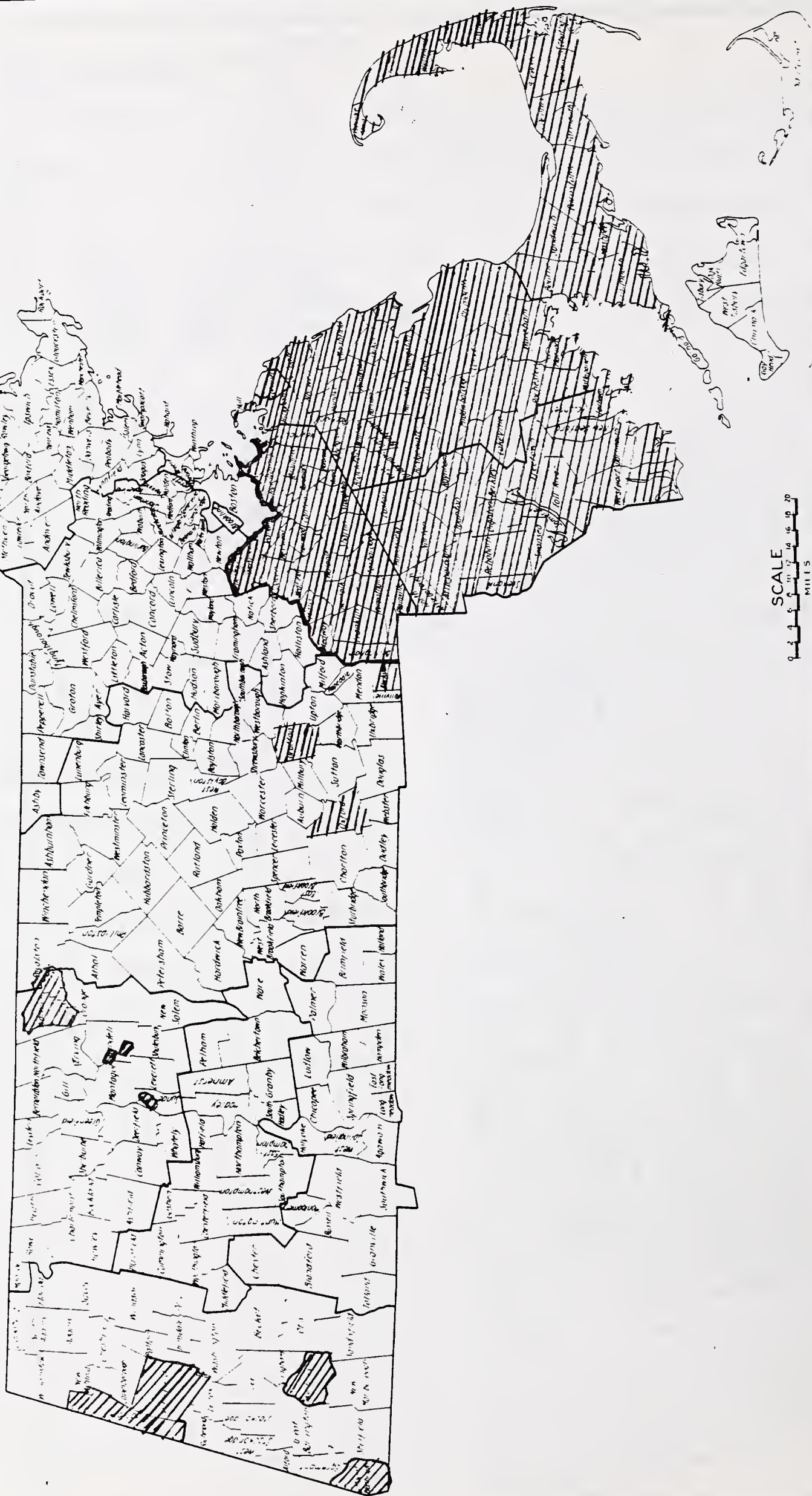


MAP A

GYPSY MOTH

# MASSACHUSETTS

## CITY AND TOWN LINES

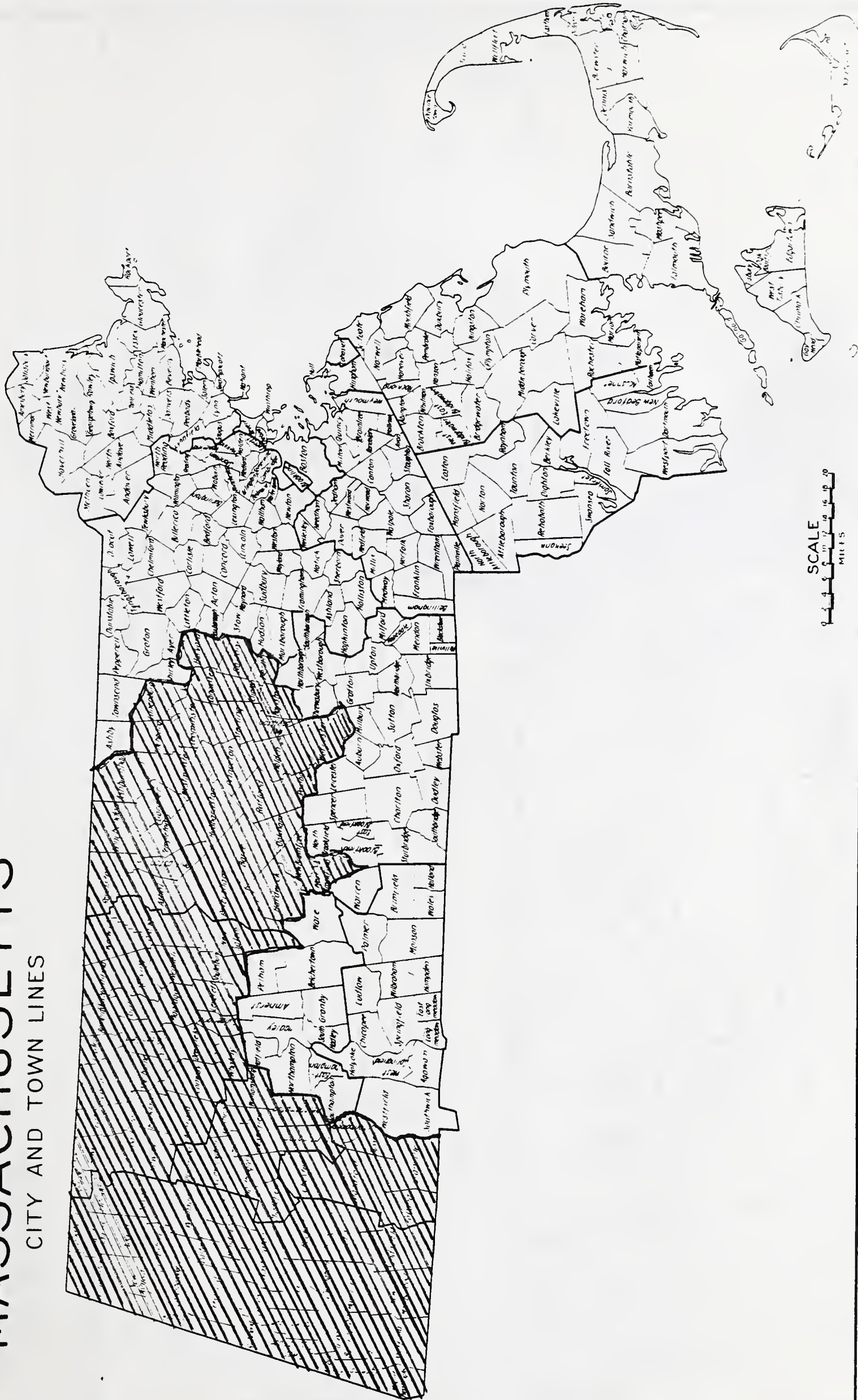


OAK LEAF TIER  
OAK LEAF ROLLER COMPLEX



# MASSACHUSETTS

CITY AND TOWN LINES



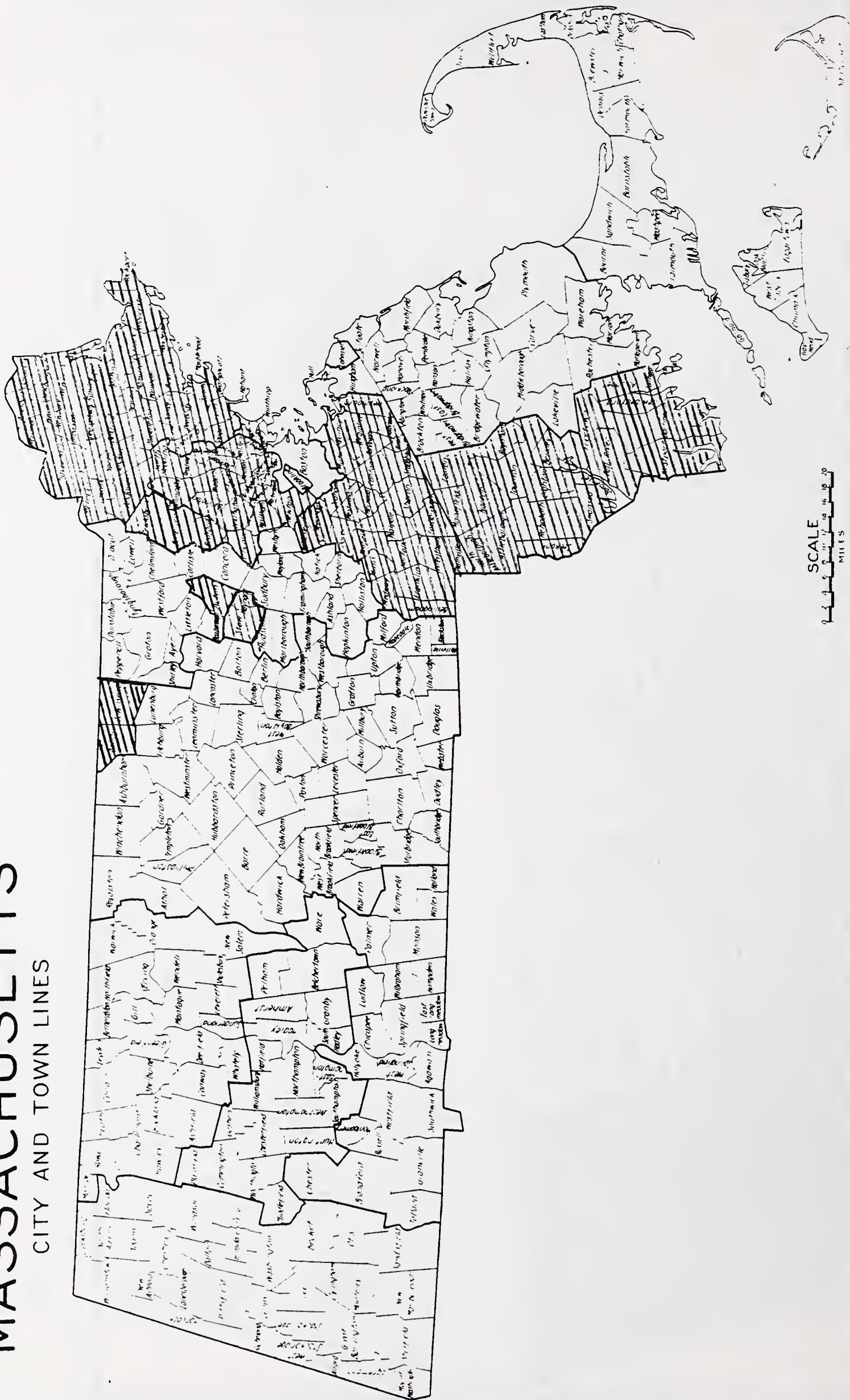
PEAR THRIPS

MAP C



# MASSACHUSETTS

## CITY AND TOWN LINES



# CITY AND TOWN LINES

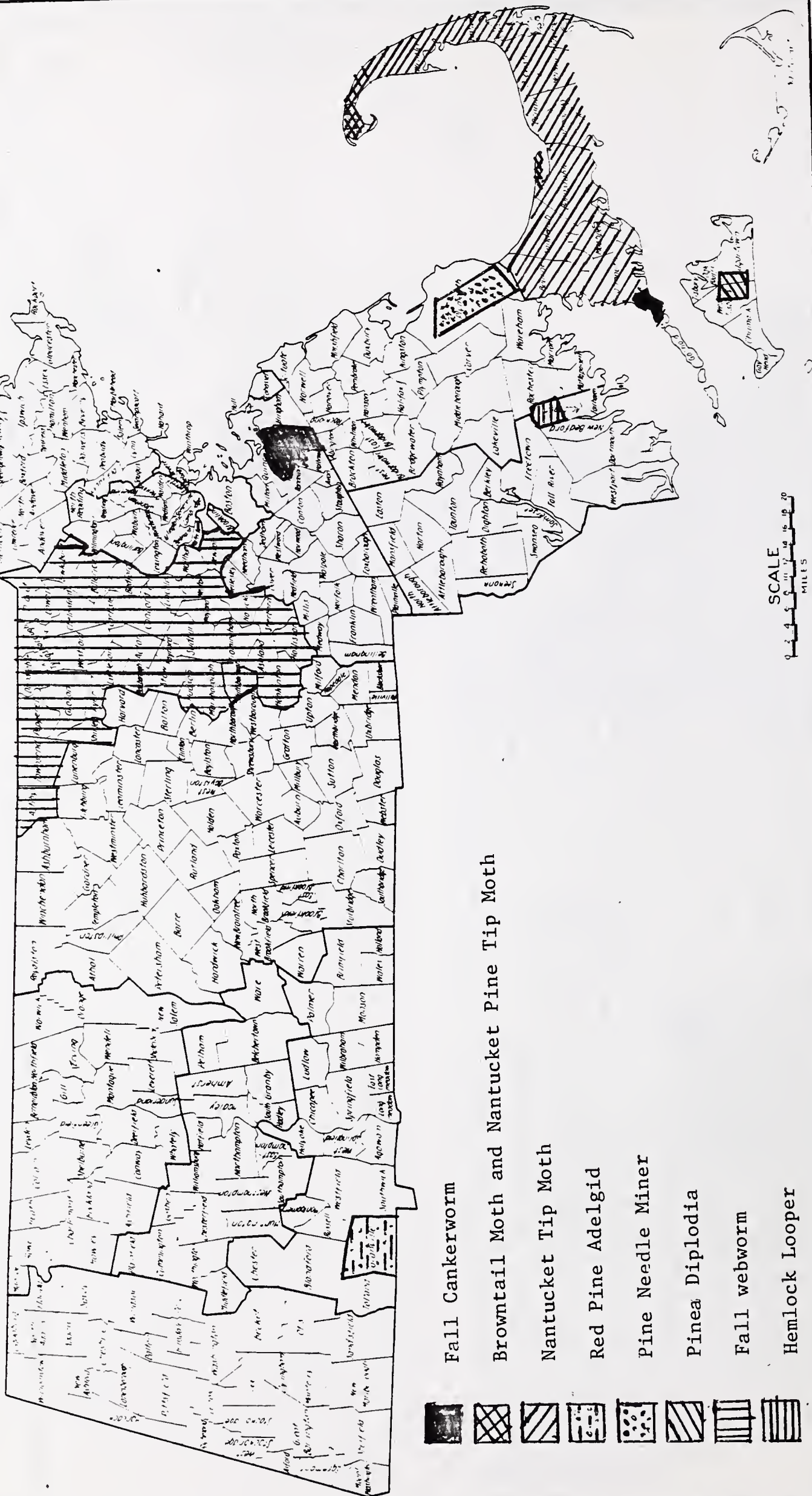
EASTERN TENT CATERPILLAR













# MASSACHUSETTS

## CITY AND TOWN LINES



-  Fall Cankerworm
-  Browntail Moth and Nantucket Pine Tip Moth
-  Nantucket Tip Moth
-  Red Pine Adelgid
-  Pine Needle Miner
-  Pine Diplodia
-  Fall webworm
-  Hemlock Looper





# ANNUAL REPORT

FISCAL YEAR 1988

BUREAU OF FIRE CONTROL

Antonio Castro, Chief

## INTRODUCTION

1988 has been a very productive one for the Bureau of Fire Control in all areas of its responsibilities.

The early drought conditions of July and August kept our personnel busy suppressing fires that were difficult to extinguish due to their deep burning characteristics necessitated the use of wet water and/or digging down to mineral soil where possible.

The army helicopters at Westover Air Base were used at fires in Douglas State Forest, Holyoke, and Ragged Mountain in Mount Greylock State Reservation. These units were high effective in extinguishing these fires which in all cases were in inaccessible terrain and beyond the limited resources on hand to contain them. Six of our "Red Carded" personnel volunteered to serve as part of the "RICON" team that fought the fire at Mt. Palomar in California last year that for a time threatened the world reknown observatory located there.

The training team assisted with the Metropolitan District Commission's program of revitalizing its forest section by constructing a three day training session on fire behavior and water handling. These men passed their written exam and stress test and qualified to be "Red Carded".

Divisional personnel were enrolled in an instructors training course at U-Mass at Amherst in January that was sponsored by the Yankee Forest Cooperative Project. Eleven of twelve candidates successfully passed this train the trainer program.

In addition to our normal prevention program there were the Annual Garden Club Poster Contest for which winners received awards presented by Governor Dukakis and the first Annual National Smokey Baseball Day with the Red Sox which was very successful.

Assistant Chief Fire Warden Patsy Bisceglia was recognized by the Northeast Fire Supervisors for his Smokey the Bear fire prevention activities by awarding him with a Bronze Smokey statuette at their annual meeting held in Harrisburg, PA.

An agreement was reached with the National Seashore Reservation on Cape Cod to provide manpower to man the Wellfleet tower. The department retains control of the tower and will train the observer. In the past we had been unable to find a tower person for this site.

## FEDERAL EXCESS PROPERTY PROGRAM

The Federal Government authorized the Department of Agriculture - United States Forest Service to enter into an agreement with the Commonwealth of Massachusetts and its designee, the Department of Environmental Management, Bureau of Fire Control, to administer the Excess Property "Pass Through" Program. This program has generated a tremendous amount of interest from the rural fire communities in the Commonwealth.

Since the inception of the program in November of 1980, 204 communities have entered into agreements with the Bureau of Fire Control to accept federal excess property under the terms set forth by the U.S. Forest Fire Service, the General Service Administration, and the Massachusetts Bureau of Fire Control. This reflects an increase of 13 communities from fiscal 1987.

In fiscal 1988 excess property from the federal government was in heavy demand by the rural fire communities in every county. Communities which acquired property put a tremendous amount of effort in rehabilitating same. Tank trucks, fire trucks, pick-up trucks and generators were beyond many small communities economic abilities. These same pieces of property could not be purchased new by the towns because of budget restraints.

By acquisition through the "Pass Through" Program many communities were able to fulfill the fire protection needs that the towns people demanded at not cost to the particular town.



FEDERAL EXCESS PROPERTY (cont)

Over 110 communities received many items of excess property this past fiscal year. Desks, chairs, filing cabinets, book cases, storage cabinets, tables-shelving, typewriters, vacuum cleaners, fire protective clothing, shop equipment and small tools were items in demand by many small communities. The approximate dollar value of all excess property transferred to RFD's in fiscal 1988 totaled 197,360 dollars. Since the inception of the "Pass Through Program" in 1980 a dollar value of 2,119.611.00 in excess federal property was transferred to the rural fire communities of the Commonwealth.

This past fiscal year the Bureau screened and acquired \$560,157.00 dollars worth of federal excess property that was transferred to rural fire communities and to the five regions under the Division of Forests and Parks.

The process of acquiring material starts with the Fire Chief of a town when he submits his letter requesting participation together with his prioritized list. Request for equipment must be accompanied with a justification sheet which indicates the need for and how it will benefit his community and how it will be used and garaged. We then send the Chief a copy of our agreement which he signs and returns for the signatures of the Director and the Commissioner.

When the desired item is available and the Chief agrees to accept it, an addendum is filled out with the pertinent information on the item and signed by the Chief. Copies of the agreement, addenda and receiving GSA copy are sent to the Chief, District Fire Warden and Excess Property Coordinator with the original remaining in the Boston Office.

The in-house machinery to administer the program includes five Regional Excess Property Coordinator who have the responsibility of maintaining the flow of records from the field to Boston

The District Fire Wardens have direct contact with their Fire Chiefs as he in turn will start the process from the town to the Regional Coordinator.

The Bureau has administered the Excess Property Program since the 1960's when the U.S. Forest Service enabled the states to use their high federal priority to acquire property that would improve their fire protection capabilities.

The present dollar value of our Excess Property Inventory is 3,927,060.00 an increase of \$207,780 from fiscal '87.

REGION I

<u>Area</u>	<u>Property</u>	<u>Value</u>
MSSF S.P.	1968 Int. Harv Refuse Truck	\$14,035.00
MSSF S.P.	Baker Forklift	\$17,500.00
MSSF S.P.	1978 Plymouth Wag.	\$ 3,000.00
Freetown S.P.	(2) Jeep's Kaiser	\$ 4,900.00
MSSF S.P.	1979 Ford Fairmont 4 Dr Sedan	\$ 3,066.00
Freetown S.P.	Wheeled Tractor	<u>\$13,554.00</u>
		\$56,055.00

REGION II

<u>Area</u>	<u>Property</u>	<u>Value</u>
Plum Island S.P.	1968 Jeep Ambulance	\$ 6,000
Bradley Palmer S.P.	1975 Dodge Stake Truck	\$16,100.00
Carlisle Hdqtrs	1978 Chevy Ambulance	\$11,917.00
Carlisle Hdqtrs	1962 Ford 31 Pass. Bus	<u>\$15,402.00</u>
		\$49,419.00

REGION III

<u>Area</u>	<u>Property</u>	<u>Value</u>
Otter River S.P.	1968 Cargo Van	\$ 3,637.00
Lancaster F.O.	Baker Fork Lift	\$ 6,244.00
Douglas S.P.	Travel Trailer	\$ 3,497.00
Otter River S.P.	Lathe	\$ 607.00
Otter River S.P.	Typewriter	\$ 516.00
Otter River S.P.	Generator	<u>\$ 973.00</u>
		\$15,474.00

REGION IV

<u>Area</u>	<u>Property</u>	<u>Value</u>
Warwick S.P.	Baker Forklift	\$ 7,481.00

REGION IV (cont)

<u>Area</u>	<u>Property</u>	<u>Value</u>
Holly Moore Hdqtrs	1976 Dodge Maint. Truck	\$ 5,824.00
Warwick S.P.	John Deere 1972 Loader	\$14,917.00
Munroe S.P.	D-4 Bulldozer	\$29,505.00
Holly Moore Hdqtrs	1978 Ford Fairmont 4 Dr. Sedan	<u>\$ 3,066.00</u> <u>\$60,793.00</u>

REGION V

<u>Area</u>	<u>Property</u>	<u>Value</u>
Pittsfield S.P.	1975 Ford Pick-Up	\$ 4,169.00
Pittsfield S.P.	1981 Ford Pick-up	\$ 4,169.00
Pittsfield S.P.	1975 Ford Pick-up	\$ 4,169.00
Pittsfield S.P.	1975 Dodge Pick-up	\$3,778.00
Pittsfield S.P.	Truck Pump Unit	\$ 7,152.00
Pittsfield S.P.	Compressor	<u>\$ 2,426.00</u> <u>\$25,863.00</u>



Federal Installations Where Excess Property was acquired

<u>Location</u>	<u>Property Value Acquired</u>
Watervliet Arsenal Watervliet, N.Y.	\$98,460.00
Westover Air Base Westover, MA	\$87,676.00
Fort Devens Fort Devens, MA	\$105,210.00
GSA Randolph Warehouse Randolph, MA	\$115,719.00
Davisville Naval Const. Battalion Davisville, R.I.	\$58,427.00
Groton Sub Base Groton, Ct.	\$20,419.00
Portsmouth Naval Shipyard Portsmouth, N.H.	\$50,057.00
Brunswick Naval Air Station Brunswick, ME	\$24,189.00
Total	<u>\$560,157.00</u>

FEDERAL EXCESS PROPERTY "PASS THROUGH PROGRAM" STATISTICS

	<u>FISCAL YEARS</u>					
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
<u>RURAL FIRE DEPARTMENTS ENROLLED</u>						
						<u>1988</u>
<u>IN PASS THROUGH PROGRAM:</u>	90	127	148	161	183	191
						204
<u>VALUE OF EXCESS PROEPRTY ACQUIRED</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
						<u>1988</u>
<u>FOR RFD'S AND DEPARTMENT:</u>	\$329,264	\$456,822	\$572,854	\$477,184	\$555,680	\$896,614
						\$560,157

<u>TOTAL VALUE OF PROPERTY ACQUIRED THROUGH THIS PROGRAM</u>	<u>\$3,927.060.00</u>
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## SMOKEY BEAR POSTER CONTEST

The Bureau of Fire Control in cooperation with the Massachusetts Federated Garden Club conduct a Smokey Poster Contest throughout the state's many school departments. Over 2500 youngsters from kindergarten through high school compete for four awards. Also included are participants in the adult and senior citizens category. Winners selected in Massachusetts compete in Regional and National competition.

The reward for the six category winners is a visit with the Governor at the State House. Children and their parents and grandparents have a rare opportunity to meet the Governor and Smokey Bear. The contestants receive citations and awards commemorating their winning poster. In order to attract youngsters in the junior and senior high schools the Department presents a \$50.00 savings bond to the 4 children category winners. The Governor also reads a proclamation in Smokey's honor for that day.

This year Lt. Governor Evelyn Murphy again presented the awards to the poster contest winners on Friday, May 27, 1988 in the Governor's Office.

Smokey's presence with the Governor each spring in passing out awards and citations to the poster winners has proven to be one of the most successful methods in promoting Smokey's "Forest Fire Prevention Program". Each year we are reaching out to more Garden Clubs to participate and also increasing school children and senior citizen participation.

In fiscal '88 36 schools and 3,398 youngsters prepared posters to be judged. Most of the schools and participants are in the eastern part of the state. We are trying to spread more participation westward.

### 1988 POSTER WINNERS AND SCHOOLS:

- \* Kindergarten - 2nd grade: Rebecca Marques - Harrington School (Chelmsford)
- \* 3rd - 5th grade: Sarah Marks - Spofford Pond School (Boxford)
- 6th - 8th grade: Andrew LeVasseur- Pine Hill School (Sherborn)
- \*\* 9th - 12th grade: Jason Hillenbach- Plymouth-Carver Intermediate School (Plymouth)
- \* Special Education: Timothy Cenefelt- North Adams Middle School (North Adams)
- \* Senior Citizen Award : Faith Gazzaniga - North Adams

Mrs. Linda Jean Smith of Chelmsford Jr. Garden Club was this years Smokey Poster Contest Chairperson.

\*\* National Winner

\* Regional Winners



SMOKEY and THE PRO's:

The U.S. Forest Service initiated Smokey and the Pro's Fire Prevention Program on the west coast in 1984 with many of the pro baseball, football and basketball teams. This past fiscal year the Bureau was asked to participate in this fine fire prevention program.

In April of 1987 the Assistant Chief attended a Smokey and the Pro's workshop in Columbus, Ohio in order to prepare for Smokey's appearance at Fenway Park on August 25, 1987. This was Smokey's night. He greeted many young baseball fans during pre-game ceremonies. He also had the honor of throwing out the first pitch prior to the Red Sox vs. White Sox baseball game. Prevention messages were displayed on the scoreboard before and during the game. Major League baseball cards were distributed by Boy Scout Troop #31 from Rochester, MA. Commissioner Gutensohn, Director Bliss, Chief Castro and a representative from the U.S. Forest Service participated at home plate in presenting the Boston Red Sox with Commemorative plaques signifying Smokey's fire prevention appreciation.

The program was well received by the 30,000 plus spectators and by the officials of the Boston Red Sox.

Smokey again will appear in Boston at Fenway Park on September 10, 1988.

## PREVENTION

The Bureau of Fire Control personnel received many requests to visit elementary schools throughout the year. With Smokey in attendance our personnel presented many seminars pertaining to fire prevention in an educational atmosphere. This program has proven very beneficial in acclimating our younger generation in the practice of fire prevention at a most critical stage of their inquisitive life.

Smokey has played a major role in reducing forest fires over the past 42 years. In 1942 more than 10 million acres of our woodlands were burned or destroyed. In 1983 only 3 million acres were reported burned. This was a savings to the American people of over 20 billion dollars.

In Fiscal 1988 Smokey performed in 366 schools and participated in 152 Civic functions. We were able to reach approximately 15,850 young elementary school children. Our programs were also administered to older citizens and community functions. **Smokey still provides a great deal of excitement at parades and community functions and at the Big "E".**

## FOREST FIRE VIOLATIONS:

Another important prevention program is the issuing of criminal citations and warnings to individuals in violation of the Massachusetts Forest Fire Rules and Regulations and M.G.L. Chapter 132 pertaining to Forest Cutting Practices. We witnessed 492 fire and logging violations in fiscal 1988. We issued 146 written warnings. District 2 issued 21 written warnings along with 25 for District 7. This past fiscal year the Bureau issued 32 stop orders.

The inspection of logging operations takes up a great deal of the District Fire Warden's and Forests Fire Patrolman's work day. The new Forest Cutting Practice Law has increased the responsibility of these key personnel. In Fiscal 1987, we had 2,622 logging operations. This past year we inspected 3032 logging sites. District 10 (448 inspections) District 7 (497 inspections) District 12 (471 inspections) and District 9 had (922 inspections).

The inspection system serves a two fold purpose; it establishes uniform fire minimizing standards with loggers; it also familiarizes our fire personnel with fuel conditions and terrain they might not ordinarily be familiar with.

## FIRE PREVENTION WEEK:

During Fire Prevention week in October the Bureau prevention team with Smokey Bear play a very important role by coordinating fire prevention activities with many cities and towns in the Commonwealth. Attending Fire prevention programs in schools, elderly housing units, parades and distribution of Smokey Bear prevention materials.

### THE BIG "E":

Every fall during the Big "E" fair in W. Springfield Smokey's presence has always played a major role in the Department exhibit area. Every fire district in the state contributes certain amount of effort with Smokey in order to make this a very special event. Hundreds of thousands of people from all over New England gather to view the exhibit.

### NEW ENGLAND TELEPHONE SAFETY FAIR:

New England Telephone sponsored a safety fair in Boston this past September. Once again Smokey played a major role. Fire personnel from District 5 put on a great demonstration. Smokey rode in on our tanker from Bradley Palmer fire hdqtrs. The Bureau and Smokey have been invited to attend other out-door safety fairs later into the recreation season.

### POLAROID SAFETY FAIR:

Polaroid sponsored a safety fair in Norwood, MA at its main plant on June 24, 1988. District 4 fire personnel and Smokey passed out prevention material dealing with out-door camping fire safety techniques. Our Bureau was well received and Smokey was the big attraction. More and more large corporations are presenting safety fairs prior to the summer recreation season and Smokey is the biggest attraction to these fairs.



## DETECTION

In keeping with Director Bliss' request for sustained patrol activity, the Bureau's Forest Fire Patrolmen have logged a total of 542,479 miles. This reflects an increase in patrolling activity of 107,450 miles from fiscal 1987. The increase in patrolling can be attributed to weather conditions and high fire index days. This past spring and early summer reflected high temperatures and light precipitation. An active forest cutting enforcement program has attributed to many miles of fire patrolling.

## FIRE TOWER DETECTION

The state is divided into 13 fire districts. Fifty-three Fire Observation Towers are located in strategic elevated areas throughout these districts. Our tower observers offer the rural fire communities an invaluable asset in detecting forest fires immediately after ignition. This past fiscal year our fire towers detected 1,798 forest fires. This reflects an increase of 935 detected fires from FY 1987. Fires reported by communities totaled 3,832 fires. This reflects an increase of 1,642 reported fires from FY 1987 by rural fire communities. Overall detection by towers, aircraft and other sources totaled 3,919 fires. FY 1988 was a very active fire season as comparison of yearly statistics will indicate.

Immediate detection of forest fires and rapid reporting procedures to rural fire communities is a valuable asset in the reduction of costs to suppress the fires and the preservation of life, property, wildlife and forest resources.

The new tower constructed this year in the Myles Standish Reservation has not been active as of this report due to design and construction problems. Hopefully, this tower will be activated for the FY 1989 spring fire season.

Active towers in fire districts 1,2,3, and 4 in Region I and towers located in Region II fire districts 5,6, and 14 reported 2,359 to their respective rural fire community fire departments.

## DETECTION (cont)

The detection system in Massachusetts is still provided by a combination of aerial observation and ground observation stations. In the counties east of Worcester county, ground observation stations are maintained and operated by the Commonwealth. This system is backed up during periods of high fire danger in Plymouth and Barnstable Counties by county supported planes. In the western counties and including North Worcester County, a combination of ground observation and aerial observation is utilized and supported entirely by the state.

The past flight pattern for DEM, Region III, South Worcester County, has been eliminated in order to increase the frequency of aerial detection flights over Northern Worcester County which has a high forest fire frequency. There were two additional towers manned in South Worcester County in order to shorten flight patterns. Flight patterns #3 limitations include West Boylston to Fitchburg, northwest to Royalston, and south to Hardwick, all in the Northern Worcester County area.

Flight pattern #4 in Franklin, Hampshire and Hamden Counties, DEM, Region IV has been similarly condensed from an "A" type aerial flight pattern to a rectangular flight pattern. This extends from Russell in Hamden County, north to Leyden in Franklin County, and proceeds south to Blandford in Hampden County.

We spend considerable time training fire tower observers to pinpoint the exact location of fires. This vital information is relayed to the rural fire dispatchers who in turn activate the suppression forces in their particular town.

The Bureau plays a very important role in assisting many small rural communities in all types of wildfire training. Immediate detection and response to incipient wildfire contributes to the reduction of acres burned and property lost.

## SUPPRESSION

The Bureau is mandated by law to assist rural fire communities in the suppression of wild fires. On many occasions during multi-alarm fires, our personnel not only assist in the suppression of wild fires but also will man fire stations to assist in dispatching fire information to other towns if the need arises.

Our fire tower detection system relays to the rural towns exact locations of fires detected which creates an immediate response situation to the emergency. This immediate response of fire apparatus to the scene minimizes the danger to lives and property.

The following fire statistics reflect and the important role the Bureau plays in the overall scope of detecting and suppression of wild fires in the Commonwealth. Without the Bureau's professional fire fighting assistance to the many cities and towns in the Commonwealth the loss of valuable forest and timber products would be catastrophic. Other routine functions were also performed in conjunction with suppression activities.

	<u>FY 1987</u>	<u>FY 1988</u>
Fire detected by Towers	863	1,798
Fires Reported	2,912	5,721
Acres Burned	3,418	8,164
Miles Patrolled	435,029	542,479
Assists to Cities and Towns	389	581

### Fire Classifications

	<u>Fires</u>	
	<u>FY 1987</u>	<u>FY 1988</u>
A. .25 acres or less	1,983	3,564
B. .26 acres to 9.9 acres	901	2,032
C. 10 acres to 99.9 acres	25	119
D. 100 acres to 299.9 acres	01	05
E. 300 acres to 999.9 acres	02	01
F. 1000 acres to 4999.9 acres		
G. 5000 acres to more		

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Total Class Fires

2912

5,721

\* See charts for fire trends



## PRESUPPRESSION - CONSTRUCTION - MAINTENANCE

Each year our construction crew headquartered in Brimfield performs many tasks in restructuring fire towers, cabin, telephone and power lines. This year was no exception. Twelve fire towers had work performed on them. The crew's expertise in all phases of construction activity is invaluable.

The following schedule indicates work performed in the various counties where our towers are located:

<u>TOWER</u>	<u>COUNTY</u>	<u>WORK PERFORMED</u>
Bourne	Barnstable	Interior Cabin repairs
Brewster	Barnstable	Constucted new cabin
Norwell	Norfolk	Installed new antenna
Chelmsford	N, Middlesex	Painted tower base Guy wire replacement
Georgetown	Essex	Steel replacement
Andover	Essex	Installed co-axial cable - painted tower base - installed new antenna. Repaired repeater
Charlton	S. Worcester	Stair & Platform repair work
Princeton	N. Worcester	Installed underground telephone line Powerline repair. Prepared tower for communication transfer from Boston. Repaired Rotheon Bldg.
Philipston	N. Worcester	Powerline repaired
Pelham	Hampshire	Repaired roof flashing
Monterey	Berkshire	Powerline repairs
Savoy	Berkshire	Repaired cabin- electrical work - Installed new antenna - Powerline

## FOREST & PARK MAINTENANCE

The fire construction crew spent many manhours on many other Division facilities: without their expertise in all hases of construction and rehabilitation work the cost to accomplish this work would be beyond budgetary limits.

FORESTS & PARKS MAINTENANCE (cont)Region I

<u>Location</u>	<u>County</u>	<u>Work Performed</u>
Freetown	Bristol	Radio Tower repair.
Bourne Bridge	Barnstable	Antenna installed.
Myles Standish	Plymouth	New Antenna.
Nickerson	Barnstable	Powerline repair.
Scusset Beach	Barnstable	Powerline and guy wire repair.
Shawme Crowell	Barnstable	Powerline repair.

Region II

<u>Location</u>	<u>County</u>	<u>Work Performed</u>
Willard Brook S.P.	N. Middlesex	Wired garage for equipment use.
Carlisle	N. Middlesex	Repaired weather instruments.
District 6 Fire Hdqtrs	N. Middlesex	Wired lights, receptical and sump pump.
Carlisle	N. Middlesex	Installed emergency service.
Hopkinton	S. Middlesex	Ground radio tower.
Maudsley S.P.	Essex	Electrical work and new antenna.
Halibut Point S.P.	Essex	Grounded telephone and alarm system.

Region III

<u>Location</u>	<u>County</u>	<u>Work Performed</u>
Mt. Wachusetts	N. Worcester	Worked on tower specs, preparing licenses, base locations installed radio equipment at new Hdqtrs. Worked on control room transfer from Boston.
Clinton Reginal Office Hdqtrs	N. Worcester	Grounded radio tower.

Region IV

<u>Location</u>	<u>County</u>	<u>Work Performed</u>
Mohawk S.P.	Franklin	
Brimfield S.P.	Hampden	Build new well-house
Dean Pond	Hampden	Telephone remodled. Repair bathhouse for office space.

Region IV (cont)

<u>Location</u>	<u>County</u>	<u>Work Performed</u>
D.A.R.	Franklin	Powerline repaired.
Sugarloaf Mt. SP	Franklin	Repaired photo-voltaic panels
Brimfield	Hampden	Cutting and welding steel for fireplace grate. Welded dept. and E.P.O. equipment (plows tractors and snowmobiles) Installing light fixtures - fabricating lumber for cabin roof rafters and braces.
Erving	Franklin	Electrical conduit repairs
Brimfield	Hampden	Fabricated & Installed gate Wired carpenters shop. Constructed hazardous waste bldg. Fabricated steel into antenna brackets and clamps.
Mt. Grace	Franklin	Constructed footings and installed antenna.
Robinson S.P.	Hampden	Powerline repair.
Moore House	Hampshire	Installed antenna.

Region V

<u>Location</u>	<u>County</u>	<u>Work Performed</u>
Tolland	Berkshire	Repair guy lines.
Mt. Greylock	Berkshire	Installed co-axial cable on repeater and new antenna.

The construction crew of John Motroni, Foreman, Gary Faulkins, Dick Riberdy and Bill Cloran also traveled extensively throughout the state to inspect tower sites and inventoried future construction and rehabilitation projects. They also visited state swimming pools to inspect all metal ladders.

ASSISTANCE TO OTHER BUREAUS:

The Bureau of Fire Control fire personnel assisted other Department Bureaus in many phases of park related activities. According to Bureau statistics 16,294 manhours were performed assisting other Bureaus in the Division of Forests and Parks. On a monthly average 1,358 manhours is spent on work projects other



ASSISTANCE TO OTHER BUREAUS (cont)

than Bureau's work assignment. A monthly average of 272 manhours of labor is performed in each region in our system. Cooperation within the Division by the Bureau of Fire Control has to add to the Bureau's wide expertise in all kinds of work projects it is asked to perform.

ROAD AND FIRE LANE MAINTENANCE

Each year our fire personnel are required to maintain roads and fire lanes in all our state owned lands. Fire ponds are also maintained as a source of water supply during suppression activities. This past fiscal year we maintained 256.75 miles of fire access roads.

FISCAL YEARS

<u>FIRE CONTROL ACTIVITY</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Miles Patrolled	372,881	504,105	460,465	616,570	498,325	435,029	542,479
Logging Inspections	574	1,067	1,876	2,793	3,381	2,622	3,032
Fires Detected:							
owers)	2,566	1,364	1,619	3,662	3,160	863	1,798
erial)	45	0	5	9	6	23	67
ther)	0	0	0	1,102	1,235	1,163	2,054
Prevention Programs	543	590	591	617	632	763	590
Acres Burned	10,487	2,047	5,168	13,777	9,110	3,418	8,164
Fires Reported	4,887	282	5,302	7,755	6,162	2,912	5,721
Truck Runs	387	211	350	751	416	271	804
Forest Fire Violations	490	250	211	247	412	83	364
Chapter 132 Violations		392	364	253	183	102	130
Chapter 132 Cutting Plans		601	1,094	1,123	816	591	533
Assists to Cities & Towns	380	429	975	1,430	1,680	387	581
Miles of Access Roads	222	269	270	232	336	205	256
Training Program:							
in-house)	327	440	425	672	495	424	256
other)	41	131	210	336	276	103	106

SUMMARY of ACTIVITIES - FY 88 BUREAU OF FIRE CONTROL

DISTRICTS	1	2	3	4	5	6	7	8	9	10	11	12	14	TOTALS
Miles Patrolled	57006	22609	35292	20419	53165	30560	54371	46011	56452	39975	69171	25949	31499	542479
Prevention Prgms	45	59	21	50	48	32	98	47	33	61	12	21	51	590
Schools	15	54	12	45	39	30	14	47	27	20	03	07	46	366
Civic Groups	05	05	09	05	09	02	54	0	06	41	09	02	05	152
Fires Detected	474	693	249	430	279	560	154	461	123	52	132	03	309	3919
Towers	252	280	249	327	156	199	64	32	13	41	75	03	107	1798
Aircraft	0	38	0	0	0	0	0	06	12	11	0	0	0	67
Others	222	375	0	103	123	361	90	423	98	0	57	0	202	2054
Fires Reported by Cities & Towns	474	260	186	645	339	361	340	461	98	18	440	177	33	3832
Assists to Cities & Towns	19	71	29	97	51	108	154	26	09	13	17	12	129	581
Fires on Division Lands	02	42	03	29	06	37	10	05	01	03	32	06	47	223
Chapter 132 Logging Inspections	05	66	28	39	08	225	497	186	922	448	56	471	81	3,032
Violations	08	16	01	64	02	13	22	07	20	09	09	193	0	364
Other	01	41	01	26	02	01	12	26	39	33	0	0	0	130
Miles of Access														
Roads Serviced	0	22.25	16	3.75	25	0	20	104.25	20	10	8.50	10	7.0	256.75
Trng Prgms. In-House	06	22	21	11	08	30	05	02	16	48	33	25	29	256
Other	0	09	01	02	04	09	08	04	39	02	14	0	14	106
Assistance to Other Bureaus (Man-Hrs)	2201	946150	313	597	1274	2815	534	1588	1536	709	1625	1078	1077	16,293.5
Railroad Fires	0	0	0	0	0	0	01	26	25	0	0	0	14	66

#### TRAINING OF BUREAU AND DIVISION PERSONNEL:

A "Record of Training" is being maintained by all District Fire Wardens for each individual trained to fight forest fires.

Training is an on-going never ceasing requirement in all types of fire fighting. Due to personnel turn-over in the Bureau, training is a pre-requisite to effective fire detection, prevention and suppression techniques. The safety of employees and the general public is of high priority.

This past fiscal year many Bureau personnel enrolled in fire training courses offered by the Massachusetts Fire Academy to better qualify them in their profession:

1. Command of Multiple Company Tactical Operations (12 Hrs.)
2. Hazardous Materials (6 Hrs.)
3. Cold Water Rescue (6 Hrs.)
4. Woodland and Wildfires (3 Hrs.)
5. Forest Fire Command and Control (5 Hrs.)
6. Forest Fire Driver/Operator (5 Hrs.)

#### U.S. FOREST SERVICE TRAINING:

1. Instructor Training Course
2. S-390 Fire Behavior Course
3. Smokey Bear Prevention Workshop

#### UNIVERSITY OF MASSACHUSETTS TRAINING:

1. Forest Fire Management Course (20 weeks)
2. Control Burn. Hands-on Training

In fiscal 1988 the Bureau had 256 in-house training sessions and 106 training sessions with RFD's and other state agency personnel.

Red card (qualifies personnel to fight out of state fires) and green card (compact states requirements) training was held to qualify them as inter and intra state fire fighting crews. The out of state fire fighting bill is moving through the legislature at this writing. Requirements to maintain these cards must be met on a yearly basis. Classroom and physical standards must be maintained and tested.



#### METROPOLITAN DISTRICT COMMISSION EMPLOYEE TRAINING:

Many fires occur on MDC property during the course of the year and much of the time our Bureau responds to extinguish these fires.

On January 26 and 27th classroom training was held for 32 MDC employees. The S-190 Basic Fire Fighting theory was introduced to prepare them for a hands-on training course in moving water from water holes and tankers through the use of centrifugal pumps and forestry hose.

Instructors included Joe Sakaske, Clive Papineau, Steve Frieswick, Phil Moulton and Bill Care. Personnel from District 5,6 and 14 assisted with their equipment.

Technology of centrifugal, piston and rotary pumps and their mechanical differences were presented in a classroom situation.

Cooperation from MDC employees at future fires on their property will minimize damage by fire to their wooded areas.

#### WOODLAND FIRE FIGHTING SAFETY TRAINING PROGRAM:

The Bureau, in cooperation with the Massachusetts Fire Academy in Sudbury have completed a 45 minute forest fire safety training slide presentation which will benefit all fire departments in the state. This training slide presentation will enable many communities in the proper handling of forest fire vehicles, tools, equipment and proper attire in fighting forest fires.

#### EMERGENCY AND DISASTER TRAINING:

One day per month training seminars are held at the Civil Defense Hdqtrs. in Framingham for the purpose of coordinating resources, training and operations in the event of a major disaster caused by human or natural situations.

The Assistant Chief Fire Warden attends these monthly training sessions as the liaison for the Department, which is required under Executive Order#144 signed in 1978 by the Governor.

Training sessions include Departmental responsibility to the Civil Defense Agency in the event of hurricanes, nuclear accidents, earthquakes, blizzards or any other disaster which may threaten lives and property. Scenario's of disaster situations are simulated and response by agency liaisons are recorded during these sessions.

The Department played a major role this past fiscal year during the October surprise blizzard in the Berkshires. Fire personnel and Shade Tree Mgmt. personnel responded to assist communities in the Berkshires in clean-up operations of debris and slash created by this storm.

## NORTHEASTERN FOREST FIRE PROTECTION COMMISSION (COMPACT)

The Northeastern Interstate Forest Fire Protection Compact Public Law # 129 - 81st Congress was passed to promote effective prevention and control of forest fires in the northeast region of the United States and adjacent areas in Canada by maintenance of adequate forest fire fighting services by member states and by providing for mutual aid in fighting forest fires. This law was approved by Congress in 1949. It was designated as "The Northeastern Forest Fire Protection Commission "(COMPACT).

The COMPACT is comprised of three Commissioners from each state and the provinces of Quebec and new Brunswick who appoint an Executive Director who will perform all the duties customarily performed by a secretary and a treasurer. There are three standing committees designated: Operations Committee (Fire Supervisors), Training Committee and Equipment Committee. Each standing committee shall have one representative from each compact member state.

Committees shall meet not less than once per year and shall present a report of its activities to the annual meeting of the Commissioners held every July.

The COMPACT is comprised of fire personnel from Massachusetts, Connecticut, Rhode Island, New York, Vermont, New Hampshire, Maine and the Provinces of Quebec and New Brunswick from neighboring Canada.

Each year COMPACT holds a training seminar in New Hampshire to instruct COMPACT crews in the latest advances in forest fire control and how to react to inter and intra state emergencies.

### Compact Winter Training

This year COMPACT winter training seminar was held in Rutland, Vt. on February 2 through the 4th 1988. This years training theme stressed Fire Behavior, Fuels and Tactics in the Compact area.

A formal S-390 course in Advance Fire Behavior was given to approximately

### Compact Winter Training (cont)

24 Compact representative fire personnel. District Fire Warden Bill Care and Philip Moulton along with Patrolman Philip Gilmore successfully completed this very intensive training course.

### Operations Committee

Massachusetts is represented on this committee by Chief Fire Warden Antonio Castro. This years meeting was held in Providence R.I. on August 4-6th 1987. The meeting stressed the need of more communication between the fire supervisors and representatives of the Training, Equipment and Prevention Committees.

February 2 - 4th 1988 Rutland, Vt. - Set Compact Agenda for 5 year period.

### Training Committee

Massachusetts is represented on this committee by District Fire Warden Joseph Sakaske. This years training committee Chairman Lewis Allen, Maine's representative resigned his chairmanship to accept a postion in another field. This created a problem for the committeee as to which state would assume the chair for the next two years.

August 4 - 6th 1987 - Providence, R.I. met with Operations Committee

September 14-17 1987 - Emitsburg, Md. - National Emergency Training

Center met with Mid-Atlantic Interstate Forest

Fire PRotection Compact.

January 25-28th 1988 - Boise, Idaho - Boise Interagency Fire Center.

February 2 - 4th 1988 - Rutland, Vt. Northeast Compact Winter Training

Seminar

February 22 - 26 1988 - Amherst, MA. University of Massachusetts Instructor

Training Course. Sponsored by the Yankee Forest

Cooperative Project.

June 6 - 8th 1988 - Speculator, N.Y. - Pump review training.



## Training Committee (cont)

### Note

\* Bob Burton, New Hampshire's representative on the training committee for many years retired this past year. Clark Davis has been added to this Committee in Burton's place.

### Equipment Committee:

Massachusetts is represented on this Committtee by District Fire Warden Philip Moulton.

October 5 - 13th 1987 - Mt. Polomas, S. Calif. Out of State Fire Crew

#### Detail

February 2 - 4th - Rutland, Vt. Compact Winter TrainingSeminar. Fire

#### Behavior S-390 Course

May 3rd 1988 - Gloucester, R.I. Tri-state National Fire Crew Training.

June 6 - 9th 1988 - Speculator, N.Y. Develop equipment standards and pump testing.

### Prevention Committee

Massachusetts is represented on this committee by William Care, District #9 Fire Warden. This committee is responsible in formulating forest fire prevention programs for the COMPACT and makes its recommendations to the Operations Committee.

The Prevention Committee was recently commissioned by COMPACT, William Care was named its first chairman. This committee was charged with examining fire causes and public service announcements in dealing with all fire prevention messages. Their second meeting was held in Providence, R.I. on August 5th 1987, each member state and the provinces of Quebec and New Brunswick have representation on this committee. They presented their recommendations to the Operations Committee for Public Service Announcements for the Compact with 20-30 second T.V. spots in Urban Wildfire Prevention. These prevention messages will be operational by the spring of 1989.

## MASSACHUSETTS FOREST FIRE COUNCIL

The Massachusetts Forest Fire Council has proven to be a very important organization to the Bureau of Fire Control. The Council has representation from every forest fire association in the Commonwealth. The Council meets quarterly to discuss important forest fire techniques and procedures.

A progress report is presented to the Council by the Chief Fire Warden during these sessions. By statute the Bureau has the responsibility to assist all fire communities in all related detection, prevention, pre-suppression and suppression activities.

The following organizations have delegates who attend these quarterly meetings:

Barnstable County Fire Chiefs Association  
Cape Cod Foresters and Firefighters Association  
Plymouth County Forest Wardens and Firefighters Association  
Bristol County Forest Wardens and Firefighters Association  
Norfolk County Firefighters and Wardens Association  
Essex County Fire Wardens Association  
Blackstone Valley Forestry Association  
Quabog Mutual Aid Association  
Worcester West Forest Wardens Association  
Western Mass. Forest Wardens Association  
Berkshire County Forest Wardens Association

Members also include the Director of Forests and Parks, Regional Forests and Parks Supervisors, District Fire Wardens and Patrolmen, Rural Fire Department Fire Chiefs, Forest Wardens and the Director of Air Quality Control, DEQE.

## STATE SAFETY COMMITTEE

In 1983 the Chief Fire Warden was designated chairman of the State Safety Committee by the Director of Forests & Parks. This Committee is comprised of Bureau Chiefs in the Division of Forests & Parks.

A District Fire Warden was designated as chairman in each of the 5 regions in the Division. The safety Committee objective was to formulate safety policy and safety programs for all division personnel and millions of the public patrons who visit our network of state parks. It is the responsibility of the Regional Safety Chairman to inspect all worksite areas, buildings, vehicles and all types of power equipment to see if they meet all the safety standards prescribed by OSHA.

Weekly reports are received by the Regional Chairman from Area Supervisors who monitor safety standards in their respective areas. If a safety hazard or a safety problem is reported, it is the responsibility of the Region Chairman and his Regional Safety Committee to take whatever corrective action is necessary to correct the deficiency. If corrective actions can not correct the problem reports are then forwarded to the State Safety Chairman for further corrective actions.

State-wide safety meetings are held at least twice a year with all safety designated committees. The regional Safety Chairman and his committee meet once a month at different units areas to perform safety inspections in the area. Each fiscal year monies received through the Dept. of Envir. Mgt. Retained Revenue Fund is passed on to the Regions to acquire safety equipment necessary to make our state facilities as safe a working place as possible.

In fiscal year 1988 the Safety Committee focused on purchasing face masks and surgical gloves for prevention of any communicable diseases which could be transmitted when performing emergency treatment to accidental victims. Each Region received \$5,000.00 dollars to purchase their needs.



STATE SAFETY COMMITTEE (cont)

The success of our safety program depends on the importance of stressing safety first at all times. The hard work of the Regional Safety Committees in educating all of the Division personnel in good driving habits, proper instruction in the use of power equipment and tools and diligent safety habits has made this program the best in the Commonwealth.

## RURAL COMMUNITY FIRE PROTECTION

The Federal Rural Community Fire Protection Act provides additional funding to fire department with the responsibility of protecting communities with a population of 10,000 or under. It is specifically designed to provide some additional financial assistance to these departments to increase their level of fire protection to the community. Prior to 1980-1981, this funding was traditionally utilized toward the maintenance and/or purchase of equipment or apparatus. However, since 1981 the emphasis has been directed toward training through an agreement with the Massachusetts Fire Academy.

The Massachusetts Fire Academy provides fire training for the 198 communities in the Commonwealth with population under 10,000.

In FY 88 the Fire Academy conducted 135 Programs for 154 communities with 2,640 Students successfully completing the courses of instruction.

In addition, the Fire Academy has worked with the Bureau to develop a slide-tape training program dealing with wildfire suppression which will be used in-house and with municipal fire departments and divisional personnel.

The Federal (RFP&C) Rural Fire Prevention and Control Program (old CM-2) has changed the way funds are allocated to the states as a direct result of Congress's instance that new approaches are needed for the distribution of federal funds.

Justification that a proposal is in the "national interest" or "assists the forest service achieve their goal" is the yardstick used to gain approval of state proposals.

No. of Fires (Type of Area)

June 1987 - May 1988

Com. Forest	Non - Comm. Forest	Non - Forest	Nonforested Watershed	Total
916	3,145	1,456	204	5,721



June 1987 - May 1988

[illegible]

Summary by Month  
June 1987 - May 1988

MONTH	NO. Fires	Acres	Cost
June	291	256.60	34,667.00
July	661	795.05	102,385.08
August	828	1,455.25	126,095.34
September	101	40.25	8,074.50
October	254	168.40	18,755.70
November	411	1,016.70	51,066.05
December	19	6.15	7,738.00
January	31	11.50	1,735.00
February	77	63.30	7,154.00
March	968	864.80	113,453.72
April	1,489	2,674.85	136,509.88
May	591	812.05	59,127.30
Total	5,721	8,164.90	660,761.57

Summary by Month  
June 1987 - May 1988

DISTRICT	NO. Fires	Acres	Cost
1	471	1,414.50	100,341.00
2	517	254.55	50,195.05
3	782	1,236.25	72,303.00
4	1,043	1,207.	66,339.49
5	342	1,096.50	13,727.00
6	405	556.75	26,357.00
7	256	350	25,612.00
8	519	244.10	102,528.75
9	142	156.50	8,109.00
10	369	341.55	17,970.00
11	378	359.20	36,652.00
12	131	160.75	20,163.50
14	366	787.25	60,463.00
Total	5,721	8,164.90	660,761.57

Damage \$457,852.03



# Fires (Size by District)

June 1987 - May 1988

DISTRICT	A	B	C	D	E	TOTAL
1	400	67	2	1	1	471
2	415	97	3	-	-	517
3	313	449	19	-	-	782
4	750	274	19	1	-	1,043
5	266	55	18	3	-	342
6	169	225	11	-	-	405
7	131	120	5	-	-	256
8	398	120	1	-	-	519
9	105	34	4	-	-	142
10	178	190	1	-	-	369
11	264	106	8	-	-	378
12	34	94	3	-	-	131
14	142	199	25	-	-	366
Total	3,564	2,032	119	5	1	5,721

Acres Burned (Type of Area)

June 1987 - May 1988

DISTRICT	A	B	C	D	E	TOTAL
1	100-	105.50	45-	100-	1,064-	1,414.50
2	85.80	136.75	32-	-	-	254.55
3	78.25	651-	407	100	-	1,236.25
4	187.50	454.50	565	-	-	1,207-
5	66.50	110.	470	450-	-	1,096.50
6	42.25	333.50	181	-	-	556.50
7	32.75	218.25	99	-	-	350-
8	68.10	161.	15	-	-	244.10
9	26-	69.50	61-	-	-	156.50
10	37.30	279.25	25-	-	-	341.55
11	52.15	155.05	158-	-	-	359.20
12	8.50	108.25	44-	-	-	160.75
14	35.50	336.75	415-	-	-	787.25
Total	820.60	3,119.30	2,511	650	1,064	8,164.90

Acres Burned (Type of Area)

June 1987 - May 1988

District	Comm. Forest	Non-Comm. Forest	Nonforested Watershed	Non - Forest	Total
1	-	1,403.50	3.75	7.25	1,414.50
2	-	254.55	-	-	254.55
3	114	696.75	170.50	255-	1,236.25
4	1,079.25	127.25	-	.50	1,207.
5	372.50	378.50	312.50	33.	1,096.50
6	.50	512.75	4.-	39.50	556.75
7	270-	25.50	2.75	54.50	350.
8	66-	95.35	-	80.-	244.10
9	-	156.50	8.25	-	156.50
10	93.75	140.70	-	98.65	341.55
11	-	189.90	2.-	169.30	359.20
12	36.25	107.	172.25	15.50	160.75
14	-	545.-	676.-	70.-	787.25
Total	2,032.45	4,633.25	676-	823.20	8,164.90



# Summary by Causes

June 19~~87~~ - May 19~~88~~

Dist.	Light	Camper	Smoker	Debris	Incen-Diary	Equip. Use	R.R.	Child-ren	Misc.	Total
1	—	29	55	105	159	50	—	57	18	471
2	1	26	66	48	182	13	1	109	71	517
3	2	40	26	77	266	12	5	113	241	782
4	1	39	172	65	234	14	21	428	69	1,043
5	—	3	62	67	125	—	—	64	41	342
6	—	2	3	46	23	4	—	22.7	100	405
7	1	6	3	64	131	4	2	32	13	256
8	1	23	75	143	34	10	40	156	37	519
9	—	13	12	54	27	4	26	6	—	142
10	1	12	157	63	36	9	32	52	3	369
11	1	18	31	92	41	6	15	164	10	378
12	1	2	—	42	73	2	2	3	—	131
14	—	12	10	66	47	11	—	207	13	366
Total	9	229	672	932	1,358	139	148	1,618	616	5,721

# ANNUAL REPORT

FISCAL YEAR 1988

BUREAU OF URBAN SERVICES

Robert E. Freedman, Chief

## INTRODUCTION

For the first time in its four years of operation, the Heritage State Parks received over one million visitors during a single year. The attendance during Fiscal Year 1988 (1,007,480) exceeded Fiscal Year's 1987 (626,000) by 381,480. Part of this significant increase was due to the large number of park visitors during the summer of 1987 (95,000) at Holyoke Heritage State Park who were attracted by the exhibit of Armand Hammer's art collection - "Five Centuries of Masterpieces, and, the City of Fall River's three day celebration - "Fall River Celebrates America" - at Fall River Heritage State Park (71,000). The remaining share of the increase (215,480) can be attributed to the growing popularity of the Heritage State Parks, in large part due to the quality of programs, services, and maintenance that is becoming a trademark of Heritage State Park management.

Our continuing efforts to expand our offerings to park visitors resulted in two new activities during Fiscal Year 1988 - an excursion boat service on the Taunton River and Mt. Hope Bay that operates out of Fall River Heritage State Park, and, a battery-powered excursion boat purchased by the Department that offers free rides to visitors to Dunn Pond in Gardner.

## AWARDS

The Bureau received several awards this year:

1. The Governor's "Pride in Performance" Award to Heritage State Park Staff.
2. The Massachusetts Recreation and Park Association Program Outreach First Place Award to Holyoke Heritage State Park for the "Five Centuries of Masterpieces" exhibit.
3. The New England Regional Council, of the National Recreation and Park Association, Arts and Humanities First Place Award to Holyoke Heritage State Park for the "Five Centuries of Masterpieces" exhibit.
4. The National Recreation and Park Association's Dorothy M. Mullen National Arts and Humanities First Place Award to Holyoke Heritage State Park for the "Five Centuries of Masterpieces" exhibit.
5. The Massachusetts Recreation and Park Association's Program Outreach Honorable Mention Award to:
  - o Lawrence Heritage State Park for the Lawrence Curriculum Project.
  - o Lynn Heritage State Park for its environmental education program: "Coastal Awareness".
  - o Fall River Heritage State Park for its environmental education program: "Seacoast Safari".



## PROGRAMMING

The Heritage State Parks continue to offer a variety of recreation and interpretive programs to the visiting public. Close to 1,000 programs were conducted during the year, from quilt-making at Gardner and Lowell Heritage State Park to a "Harbor Monster" festival at Lynn Heritage State Park. Among some of the program highlights this year were:

- o A photo exhibit entitled "Making Peace" which was displayed at several Heritage State Parks.
- o The Armand Hammer exhibit.
- o Programs at all Heritage State Park which celebrated the 350th Anniversary of Black Settlement in Massachusetts.
- o "Fall River Celebrates America" - a 3 day pageant at Fall River Heritage State Park which drew an audience of over 70,000 people.
- o The New England Sled Dog Races and the 16th Army Band Concert in Gardner, each attracting over 10,000 spectators at these park-sponsored events.

## STRATEGIES AND PROJECTS TO CONTINUALLY IMPROVE HERITAGE STATE PARK MANAGEMENT

The following was accomplished during the year to improve the efficiency and quality of Heritage State Park management:

- o Consultation visits with Visitor Services staff at each park led by Dr. Gerald Fain of Boston University, consultant and educator in the area of recreation services for the disabled.
- o Lawrence Heritage State Park selected as one of three pilot sites for a Federally funded, and Boston University - managed, project to develop innovative recreation programs for the disabled. The grant covers a three year period.

- o A series of training workshops for our buildings and grounds maintenance staff on such topics as: arboriculture, turf maintenance, plant material inventories, and maintenance management.
- o The purchase of specialized turf maintenance equipment to achieve a faster, but higher quality result:
  - Four riding lawnmowers with quick turning and short radius capability.
  - A riding and pull-behind aerator.
- o The purchase of 2 mobile performance stages to improve visibility of performers at outdoor performances such as concerts, dramatic productions, etc. while achieving savings in staff time to set up and break down equipment.
- o The purchase of 3 sound systems to improve amplification at outdoor performances.
- o Installation of new on-site signs at various Heritage State Parks; These signs were fabricated by Regional sign shops at a fraction of the cost of commercially made signage.
- o Standardization and purchase of (moveable) site furnishings such as litter receptacles, food-serving carts, etc.
- o A review of all previously purchased maintenance equipment to determine best "prototypes" for future purchases.

#### ADDED RESPONSIBILITIES OF THE BUREAU

There were several new management responsibilities that have been added to the Bureau that have actually occurred or are in the planning stage:

- o Planning to assume grounds maintenance responsibility at Western Gateway Heritage State Park (currently the responsibility of the City of North Adams).
- o Maintenance of the Trustees of Reservation's "Dinosaur Footprints Reservation" in Holyoke - by Holyoke Heritage State Park.
- o Supervision of a project to clean the banks of the Spicket River in Lawrence - by Lawrence Heritage State Park.
- o Planning to assume responsibility for management of the cityowned Lynn Woods Reservation.

#### DEVELOPMENT OF NEW HERITAGE STATE PARKS

Bureau staff devote a lot of time to the planning and design of Heritage State Park development projects that are under the jurisdiction of the Division of Planning and Development:

- o Final design: Lynn Visitors' Center.
- o Preliminary Design: Roxbury (Interim) Visitors' Center.
- o Final Design: Stanley Woolen Mill to Voss Farm node (Blackstone).
- o Preliminary Design: Lawrence Riverfront Park and Bathhouse.
- o Preliminary Design: Turners Falls Visitors' Center and site.
- o Final Design: Lower Mills site.
- o Feasibility and evaluation: New Bedford Visitors' Center and site.
- o Final Design: Western Gateway north end parking and site design.
- o Feasibility: Springfield boathouse.
- o Evaluation: Fall River Heritage State park permanent exhibit.

#### BOSTON HARBOR ISLANDS AND PILGRIM MEMORIAL STATE PARKS

There were several significant items that are worthy of special mention:



- o Calf Island was formally managed for the first time in the summer of 1987 for public visitation and camping.
- o The second year of the Gallops Island environmental education program for school children was conducted in the spring and attended by 801 students from 15 urban and suburban schools. The program consists of in-school visits by teachers and students.
- o The experimental "Floating Management Base" was completed and put into use. It is solar-powered and completely self-contained.
- o The free admission program for non-profit organizations to Plimoth Plantation and the Mayflower II began.
- o For the first year the Boston Harbor Islands State Park Water Taxi provided free service from Lynn Hertiage State park on 64 round trips.
- o Pilot trips from the Neponset River to the Boston Harbor Islands State Park were conducted this year.

#### SPECIAL PROJECTS

The Bureau staff were involved with a number of park/recreation projects that are not directly related to their regular responsibilities:

- o Program Committee - third annual Massachusetts Recreation and Park Association Conference.
- o Organization of an Executive Development program for Division managers and supervisors.
- o Advisor to Recreation Supervisors' Conference organizing committee.
- o Faculty - short course on Heritage State Park management conducted at Roxbury Community College.
- o Administration of the Division's Policy Directive Handbook.

BUREAU OF INTERPRETIVE SERVICES

FY 1988 Annual Report

Ellen K. Rothman, Chief

Karl Honkonen, Assistant Chief

The Division of Forests and Parks' newest Bureau, the Bureau of Interpretive Services, continued to grow in FY 1988. Six of DEM's "traditional parks" had interpreters on staff year-round (Holyoke Range, Walden Pond, Great Brook Farm, Maudslay, Borderland, and--for the first time in 1988--Nickerson State Park). Natural Bridge, Mt. Greylock, Salisbury Beach/Plum Island, and Myles Standish offered interpretive programming through October and beginning in April. During the 1987 summer season, a total of eighty-one interpreters were at work in DEM facilities, including the seven operating Heritage State Parks, the Boston Harbor Islands State Park, and twenty-seven other forests and parks around the state. Outside of the Heritage State Parks, interpreters conducted more than 2,200 programs, attended by close to 56,000 people. The interpretive staff at Pilgrim Memorial State Park in Plymouth came into contact with an estimated 400,000 visitors.

An important ingredient in the success of DEM's interpretive program is the annual Interpretive Training Institute. Organized by DEM, the Appalachian Mt. Club, the MDC, and the National Park Service, ITI offers three days of intensive training to experienced and first-time interpreters alike. The 1988 institute, held at Cape Cod Sea Camps from June 12-15, began with a keynote address by former Senator Paul Tsongas. More than seventy DEM interpreters participated in a curriculum that included a

hands-on workshop in the design and construction of simple exhibits, an in-depth study of "living history" techniques, interpretive storytelling and puppetry, and more than thirty short workshops on subjects ranging from the Boston Harbor clean-up to stone walls, from wetland ecology to acid rain. The 1988 ITI also included a one-day program for park supervisors.

For the first time in FY 1988, retained revenue funds were set aside to support DEM's Arts-in-the-Parks program. Arts Coordinator and Artist-in-residence Charles Gibson helped organized a variety of exhibitions and performances. Three sculptors installed temporary works in the environmental art zone at Bradley Palmer State Park in the fall of 1987. During the winter, DEM brought "Making Peace," sixty photographs of peace makers by Arthur Dahl, to four of the Heritage State Park Visitor Centers. In the fall of 1987 and spring of 1988, professional musicians performed in parks around the state: Great Brook Farm's "Farm Day" and Moore State Park's "Fall Festival" both included musical performances. The re-opening of the Myles Standish Monument, the "Festival of Flowers" at Moore, the third anniversary celebration at Maudslay, and the "Summer Solstice Festival" at Mt. Greylock all featured musical performances sponsored by Arts-in-the-Parks. Another milestone was the "Latino America Musicale" concert of Puerto Rican music at Hampton Ponds State Park in June.

FY 1988 was the second year for the artist-in-residence program at Maudslay State Park. Both Jeanette Griffith, a glass sculptor, and Charlie Gibson opened their studios to the public. Theresa Linnihan, resident of the Gate Lodge and Director of the Children's Theater,



conducted summer drama workshops for young people and produced three plays outdoors:, "Alice through the Looking Glass" (summer of 1987), the improvisational "Maudslay is Haunted" (fall of 1987), and "Beauty and the Beast," which opened the 1988 season on May 28, 1988. By terms of the agreement between Linnihan and DEM, the first weekend's performances are free.

FY 1988 marked the first full year that the interpretive dairy farm at Great Brook Farm State Park was in operation. 1188 people participated in the interpretive tours scheduled on Saturdays and Sundays and another 1625 children visited the farm as part of the park's school program. DEM's other new interpretive venture, the Krug Sugarbush in Chestertown, began operations in February. A member of the Holyoke Range State Park Interpretive staff offered guided walks through stands of maple trees, where sap was being collected, to the sugarhouse, where former owners Master boiler Daniel Krug and his wife Jessie demonstrated the process of making syrup. The Krug sugarbush produced over 150 gallons of syrup during the 1988 season.

FY 1988 saw the development and production of a Spanish-language guide to state forests and parks in the Connecticut Valley. The Bureau also produced the third in a series of self-guided trail brochures for the Boston Harbor Islands and a guide to the new Cedar Swamp Trail at Douglas State Forest. Bureau personnel were actively involved in researching and writing new brochures for Nickerson and Walden Pond State Reservation, and in developing a small exhibit for the newly refurbished Summit House atop Mt. Holyoke.

Interpretive planning continued to demand considerable amounts of staff time during FY 1988. The Bureau played an active role in developing the Master Plan for Maudslay and the Concept Plan for Moore State Park. The Chief or Assistant Chief also participated in G.O.A.L.S. planning for Robinson State Park and Walden Pond and Salisbury Beach State Reservations. In April 1988, the Bureau's "Status Report and Plan, 1988-1992" was submitted to the DEM Board for review.

A P P E N D I X

ANNUAL RECREATION BUDGET

SHARED REVENUE BUDGET

BUREAU OF RECREATION REVENUE

SUMMARY OF REVENUE  
FORESTS & PARKS  
RINKS  
POOLS  
BEACHES

FACILITY ATTENDANCE

SUMMARY OF ATTENDANCE  
FORESTS AND PARKS  
RINKS  
POOLS  
BEACHES  
HERITAGE PARKS

CONSTRUCTION SUMMARY

ACQUISITION  
  
CONSTRUCTION



RECREATION  
FY 1988

<u>SUBSIDIARY ACCOUNTS</u>	<u>0300</u>	<u>0810</u>	<u>TOTAL</u>
01 Personell Year-Round	14,298,497.94	-	14,298,497.94
02 O.T. Shift Diff. Spec. Pay ETC	291,273.06		291,273.06
03 Services Non-Employees	88,403.00	15,000.00	103,403.00
04 Food for Persons	0.00	-	0.00
05 Clothing	31,700.00	58,369.00	90,069.00
06 Housekeeping Supplies & Expenses	55,000.00	-	55,000.00
07 Laboratory & Medical Supplies & Expenses	70,000.00	13,915.00	83,915.00
08 Heating & Plan Operations	1,792,110.00	125,887.00	1,917,997.00
09 Farm & Grounds	-	130,185.00	130,185.00
10 Travel & Automotive Expenses	197,099.00	9,386.00	206,485.00
11 Advertising & Printing	32,000.00	146,769.00	178,769.00
12 Maintenance -Repairs, Replacements & Alterations	-	1,037,266.00	1,037,266.00
13 Special Supplies & Expenses	8,800.00	-	8,800.00
*13 Unemployment Insurance Costs	456,092.00	-	456,092.00
14 Office & Administrative Expenses	11,500.00	33,332.00	44,832.00
15 Equipment	-	1,031,711.00	1,031,711.00
16 Rentals	74,300.00	27,608.00	101,908.00
<b>TOTALS</b>	<b>17,406,775.00</b>	<b>2,629,428.00</b>	<b>20,036,203.00</b>
*Unemployment Insurance	447,080.00	1,500.00	448,580.00

FY 1988 SUMMARY OF REVENUE

AREA	DAY USE	CAMPING	OTHER	TOTAL
BEACHES	603,953.75	602,584.00	29,831.53	1,236,369.28
FORESTS & PARKS	962,009.75	1,200,298.55	527,479.13	2,689,787.43
POOLS	79,405.25	-	3,229.75	82,635.00
RINKS	2,611,975.77	-	75,811.18	2,687,786.95
TOTAL	4,257,344.52	1,802,882.55	636,351.59	6,696,578.66

PARKS FY 1988

	PARKING	CAMPING	SEASON PASS	BUS	ADULT WALK-INS	HOUSE RENTS	CHILDRENS ROLL TYPE	COTTAGE PERMITS	CONCESSION	MISC.	PIER PERMITS	GROUP	PAY- PHONE	TOTALS
AMES NOWELL	7,512		1,640	20					161.90					9,172.00
ASHLAND	3,753		1,100					2,550.00						5,014.90
ASHMERE LAKE														2,550.00
BEARTOWN	4,692	7,194.00	1,600	60		2,752			50.50					16,348.50
BORDERLAND						4,695								5,211.00
BOSTON HARBOR IS.										10,700.00				10,700.00
BRADLEY PALMER	7,119	1,200.00	820	20		12,728								21,887.00
BUFFUMVILLE	4,776		1,540		15.00				49.90					6,380.90
CARLISLE (G.R.F.)						13,152			800.00					13,952.00
CHESTER GARDNER	4,917	652.00	400		36.00					360.00				6,365.00
CHICOPEE	31,491		7,920	120	98.50				128.05					39,757.55
CLARKSBURG	4,512	4,360.00	2,560	40	.25				50.50					12,122.75
COCHITUATE	87,810	511.50	23,680	540					9,307.88		2,960			124,952.43
D.A.R.	16,884	24,065.00	8,000	60					106.50					49,115.50
DEAN POND	6,600	324.00	2,360		18.75				25.50	2,093.75				11,422.00
DEMAREST LLOYD	29,928		7,100	220					101.01					37,349.01
DIGHTON ROCK	944		720	60										1,724.00
DOUGLAS	40,749		10,480	580					656.50	1,323.76				53,789.26
ERVING	15,900	10,322.00	9,700	20	34.25				100.00	159.71				36,235.96
FEDERATED WOMEN'S														0.00
FOXBORO														0.00
FREETOWN	2,631		1,020			3,200								6,851.00
GRANVILLE	2,811	5,440.00	600											8,851.00
HAMPTON POND	22,671		5,020		115.25	8,445			401.50					36,652.75
HAROLD PARKER	11,679	75,911.00	460						335.00				386.28	88,771.28
HOLLAND POND	6,390		1,540						25.95					7,955.95
HOPKINTON	85,941		27,580	720					8,602.02		112	2,986		125,941.02
LAKE DENNISON	10,797	66,684.00	4,280						141.45					81,902.45
LEONINSTER	15,108		5,800	20	44.25	2,328			25.00	6.30			30.07	23,361.62
MARTHA'S VINEYARD														0.00
MASSASOIT	12,708	101,162.05	2,000					75.00					275.43	116,220.48
MAUDSLAY						6,438								6,438.00
MOHAWK	3,471	25,538.00	460						51.50					29,520.50
MOORE						3,228				1,600.00				4,828.00
MT. GRACE	672	135.00	100											907.00



**PARKS FY 1988**

	PARKING	CAMPING	SEASON PASS	BUS	ADULT WALK-INS	HOUSE RENTS	CHILDRENS ROLL TYPE	COTTAGE PERMITS	CONCESSION	MISC.	PIER PERMITS	GROUP	PAY- PHONE	TOTALS
MT. GREYLOCK	1,147	8,912.00							38,554.00	30,761.63				79,372
MT. WASHINGTON		622.00				2,120								2,742
MYLES STANDISH	34,380	179,283.00	2,280	900		5,358		37,638.01	25.00	600.00			537.01	261,001
NATURAL BRIDGE	6,696		260	140	33.25									7,129
NICKERSON		266,226.00							525.00	2,442.62		1,952.66		271,146
OCTOBER MTN.	303	20,673.00	20											20,996
OTTER RIVER	3,060	23,232.00	1,800						76.90			39.62		28,208
OTIS										278.60				278
PITTSFIELD	4,333	9,229.00	440	20					25.50	205.50		140.78		14,393
PURGATORY CHASM									110.00					110
QUINSIGAMOND LAKE	5,976				1,728.50				1,508.00	1,457.00				10,669
REGETTA POINT	9,414				662.75									19,196
ROBINSON	10,311	682.00	9,120						58.05					13,371
RUTLAND	17,799		2,320	40					179.99					24,298
SANDISFIELD	5,529	363.00	6,280		1.50				25.50					9,239
SAVOY MTN.	2,490	18,966.00	3,320			1,200			75.50					23,091
SHAWMEE CROWELL	627	104,907.00	360			3,144			326.01			734.72		109,738
SKINNER						4,305								4,305
SOUTH MOUNTAIN			20											20
SPENCER	4,500		1,380			2,568			25.00					8,473
TOLLAND	11,778	42,107.00	1,700	40	4.00				176.01					55,805
THILLY REC. AREA	3	2,442.00												2,445
UPTON														2,931
WACHUSETTS MTN.						2,931				149,956.00				151,972
WALDEN POND	118,851	2,562.00	34,240			2,016			5,177.39			219.34		163,645
WARREN MANNING	324		40			2,596								364
WATSON POND	11,412		3,280	60	28.00				401.50					15,181
WELLS	1,269	34,610.00							25.00	175.00				36,079
WELLS STREETER	13,917		7,480		53.00				71.95					21,521
WENDELL	3,960		3,280		1.25				925.50	220.00	180			8,566
WILLARD BROOK	13,050	11,315.00	4,140	100		2,328			146.90					31,079
PEARL HILL	7,500	11,550.00	2,520											21,570
WINDSOR	5,484	3,507.00	1,680	20	1.25				75.50					10,767
WOMPATUCK	489	135,612.00				5,775			50.00	1.64				141,927
OFFICE ACCOUNT			660							101,614.79				102,274
TOTALS	737,068	1,200,298.55	215,100	3,800	2,875.75	91,307	0.00	40,188.01	69,759.86	305,215.35	3,072	3,166	4,315.91	2,689,787

	<u>TRAILERS</u>	<u>LAUNDROMAT</u>
WALDEN BREEZES	13,366	255.00
TOTALS=	<u>13,366</u>	<u>255.00</u>

TOTAL

13,621.00

13,621.

BEACHES FY 1988

	PARKING	CAMPING	WALK- INS	SEASON PASS	BATH HOUSE	CONCESSION	LOCKERS	PAYPHONE	MISC.	BUS	HOUSE RENT	TOTALS
FT. PHOENIX	12,834			7,482		101.01						20,417.01
HORSENECK	272,475	66,121	11.75	48,560		576.50	10.90	441.12	59.56	720		388,975.83
SALISBURY	122,150	387,379		28,680		9,319.01		1,417.24	3,435.00	200	2993	555,573.25
SCUSSET	81,256	149,084		10,000		10,762.67		102.51	337.00	200		251,742.18
SOUTH CAPE BEACH	17,145			2,240		276.01						19,661.01
TOTALS	505,860	602,584	11.75	96,962		21,035.20	10.90	1,960.87	3,831.56	1,120	2,993	1,236,369.28

RINKS FY 1988

	CHILDREN	ADULTS	SPECIAL EVENTS	RENTALS	WALK-INS	LOCKERS	CONCESSION	PAYPHONE	MISC.	JOGGING	TOTALS
AUBURN	5,694.00	12,010.00	1,458.00	125,580.00		1,094.50	5,134.00	64.52			151,035.02
BROCKTON	7,248.50	10,788.00	4,877.00	167,847.25		1,143.50	4,032.00	90.62			196,026.87
FALL RIVER	5,743.50	10,197.00	5,011.00	132,795.00		1,539.25	11,192.00	185.46			166,663.21
FRANKLIN	8,363.00	11,754.00	8,632.50	166,604.00		651.75	5,000.00	106.40	1.00		201,112.65
GARDNER	4,364.50	6,798.00	2,495.50	103,430.00	2.50	569.75	1,800.00	33.41			119,493.66
GREENFIELD	4,918.00	3,722.00	1,601.50	78,045.00		343.52	2,500.00	22.02			91,152.04
HAVERHILL	6,233.50	4,830.00	2,918.00	123,500.00		504.25	837.00	65.43			138,888.18
HOLYOKE	2,967.50	4,106.00	2,295.50	111,994.50		282.50	3,362.62	41.95			125,050.57
LOWELL	6,156.50	11,480.00	5,435.00	171,570.00		966.95	4,348.32	72.99			200,079.76
MARLBORO	5,496.00	8,555.00	1,321.00	119,719.00		234.25	3,164.00	78.15			138,587.40
NEW BEDFORD	3,625.00	6,591.00	7,841.00	132,684.50		645.64		335.98		15.00	151,723.12
NEWBURYPORT	7,174.00	6,345.00	10,782.00	162,547.50		540.41	4,000.00	162.14			191,566.05
NORTH ADAMS	1,972.50	3,533.00	2,357.00	54,403.25		266.38	2,176.00	33.31			64,741.44
NORFOLK	6,419.50	9,257.00	5,960.00	152,920.00		832.00		106.35			175,494.85
PLYMOUTH	7,731.00	6,775.00	3,825.50	122,537.77		1,007.00	4,576.00	125.17			146,577.44
SPRINGFIELD	3,213.00	5,270.00	867.00	119,595.00		401.00	4,200.00	34.63			133,580.63
TAUNTON	3,682.00	7,958.00	6,104.50	135,652.00		829.00	3,576.00	92.99			157,894.49
WORCESTER	6,492.50	11,344.00	1,721.50	116,220.00		1,263.50	1,000.00	78.07			138,119.57
TOTALS	97,494.50	141,313.00	75,503.50	2,297,664.77	2.50	13,115.15	60,947.94	1,729.59	1.00	15.00	2,687,786.95



POOLS FY 1988

	<u>PASSES</u>		<u>LOCKERS</u>	<u>PAYPHONE</u>	<u>CONCESSION</u>	<u>MISC.</u>	<u>TOTALS</u>
	<u>CHILDREN</u>	<u>ADULTS</u>	<u>GROUP</u>				
AGAWAM	1,499.75	1,637.50			141.55		3,278.80
ATTLEBORO	2,601.00	2,088.50					4,689.50
BROCKTON	3,191.00	2,565.00					5,756.00
CHICOPEE	2,093.75	1,161.50			25.50		3,280.75
CLINTON	2,619.00	1,178.50		9.21	179.95		3,986.66
FALL RIVER	6,183.25	1,550.50					7,733.75
FITCHBURG	3,068.25	969.50			231.95		4,269.70
HOLYOKE	1,564.75	654.00			365.99		2,584.74
LAWRENCE	3,864.75	1,465.00					5,329.75
LEOMINSTER	2,600.25	989.00			101.95		3,691.20
LOWELL	3,805.75	787.00					4,592.75
LUDLOW	2,783.75	632.75			51.60		3,468.10
MILFORD	2,992.50	1,677.50			152.00		4,822.00
SOUTHBRIDGE	2,677.75	646.00			71.95		3,395.70
SOUTH HADLEY	2,240.50	1,735.00			25.50		4,001.00
SPRINGFIELD	2,182.25	354.50			25.50		2,562.25
WESTFIELD	2,450.00	823.00			236.10		3,509.10
WORCESTER #1	3,625.75	2,067.50			475.00		6,168.25
WORCESTER #2	2,578.00	1,801.00			1,136.00		5,515.00
<b>TOTALS</b>	<b>54,622.00</b>	<b>24,783.25</b>		<b>9.21</b>	<b>3,220.54</b>		<b>82,635.00</b>

**1988 FISCAL YEAR  
ATTENDANCE RECORD**

AREA	CAMPING	DAY USE	NON-PAID	PAID	TOTAL
AMES NOWELL	-	24,132	16,357	7,757	24,132
ASHLAND	-	51,270	44,104	7,166	51,270
BEARTOWN	4,389	47,699	41,933	5,766	52,088
BLACKSTONE	-	13,468	13,468	-	13,468
BORDERLAND	-	99,886	99,886	-	99,886
BRADLEY PALMER	-	78,059	70,996	7,063	78,059
BUFFUMVILLE	-	19,729	18,230	1,499	19,729
CALLAHAN, RAYMOND J.	-	15,835	15,835	-	15,835
CAMPBELL FALLS	-	1,949	1,949	-	1,949
CAPE COD RAIL TRAIL	-	110,970	110,970	-	110,970
CHESTER-BLANFORD	637	4,180	4,180	-	4,817
CHICOPEE	-	61,092	23,599	37,493	61,092
CLARKSBURG	1,294	6,426	3,364	3,062	7,720
COCHITUATE	-	142,903	47,161	95,742	142,903
COOKSON	-	1,049	1,049	-	1,049
D.A.R.	17,491	45,270	22,009	23,261	62,761
DEAN POND BRIMFIELD	2,488	18,823	9,416	9,407	21,311
DEMAREST LLOYD	-	46,914	12,688	34,266	46,914
DENNISON LAKE	42,360	81,844	65,374	16,470	124,204
DIGHTON ROCK	-	9,014	6,914	2,100	9,014

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
DOUGLAS	-	111,271	60,993	50,278	111,271
DUBUQUE	-	18,038	18,038	-	18,038
ERVING	5,165	61,433	47,765	13,668	66,598
FED. WOMEN'S CLUB	1,435	15,428	15,428	-	16,863
F.G. HILLS	-	4,608	4,608	-	4,608
FREETOWN	-	19,690	12,529	7,161	19,690
GARDNER	-	9,066	4,636	4,430	9,066
GRANVILLE	6,531	7,913	4,481	3,432	14,444
GREAT BROOK FARM-CARLISLE	-	38,764	38,764	-	38,764
HALIBUT POINT	-	60,969	60,969	-	60,969
HAMPTON PONDS	-	38,115	18,653	19,462	38,115
HAROLD PARKER	40,403	66,534	58,090	8,444	106,937
HOLLAND POND	337	25,699	18,619	7,080	26,036
HOLYOKE NOTCH	-	42,313	42,313	-	42,313
HOPKINTON	-	192,113	92,564	99,549	192,113
LEOMINSTER	-	58,740	24,872	33,868	58,740
LOWELL-DRACUT	-	46,117	46,117	-	46,117
MARTHA'S VINEYARD	-	21,476	21,476	-	21,476
MAUDSLAY STATE PARK	-	119,188	119,188	-	119,188
MASSASOIT	33,703	29,521	19,286	10,235	63,224
MOHAWK TRAIL	10,309	17,380	14,275	3,105	27,689

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
MOORE	-	27,660	27,660	-	27,660
MT. EVERETT	-	26,320	26,320	-	26,320
MT. GRACE	-	13,842	13,128	714	13,842
MT. GREYLOCK	5,007	93,154	92,404	750	98,161
MT. SUGARLOAF	-	92,741	92,741	-	92,741
MT. WASHINGTON	827	61,934	61,934	-	62,761
MYLES STANDISH	104,609	602,571	570,116	32,455	707,180
NATURAL BRIDGE	-	8,947	1,559	7,388	8,947
NICKERSON	144,129	85,159	85,159	-	229,288
OCTOBER MT.	8,818	43,815	43,380	435	52,633
OTTER RIVER	19,437	54,781	50,167	4,614	74,218
PEARL HILL	5,818	20,999	10,672	10,327	26,817
PITTSFIELD	5,550	30,680	26,272	4,408	36,230
PLUM ISLAND	-	78,136	78,136	-	78,136
PURGATORY CHASM	-	72,210	72,210	-	72,210
QUINSIGAMOND-REGATTA	-	264,403	254,111	10,292	264,403
QUINSIGAMOND-LAKE PARK	-	131,360	120,549	10,811	131,360
ROBINSON	-	20,995	11,965	9,030	20,995
RUTLAND	-	50,350	24,426	25,924	50,350
SANDISFIELD-YORK	-	13,941	5,360	8,581	13,941



AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
SAVOY	8,924	11,923	9,288	2,635	20,847
SHAWME-CROWELL	46,554	8,723	7,500	1,223	55,277
SKINNER	-	106,374	106,374	-	106,374
SPENCER	-	22,318	14,700	7,618	22,318
STANDISH MONUMENT	-	21,987	21,987	-	21,987
STREETER	-	82,987	48,761	34,266	82,987
TOLLAND	27,547	44,520	33,450	11,070	72,067
TULLY RECREATION AREA	2,364	16,857	15,764	1,093	19,221
UPTON	-	14,109	14,109	-	14,109
WACHUSETT MOUNTAIN	-	268,259	268,259	-	268,259
* - SKI AREA	-	449,983	-	449,983	449,983
WAHCONAH FALLS	-	9,549	9,549	-	9,549
WALDEN POND	-	446,581	333,118	113,463	446,581
WARREN MANNING	-	1,276	870	406	1,276
WATSON	-	37,106	22,118	14,988	37,106
WELLS	25,632	19,972	18,879	1,093	45,064
WENDELL	-	24,475	16,260	8,215	24,475
WEST LAKE	393	3,823	3,823	-	4,216
WHITEHALL	-	42,640	42,640	-	42,640
WILLARD BROOK	4,823	48,379	23,414	24,965	53,202

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
WILLOWDALE	-	36,867	36,867	-	36,867
WINDSOR	2,604	10,484	3,647	6,837	13,088
WOMPATUCK	16,390	296,337	296,337	-	312,727
TOTAL	595,968	5,704,455	4,389,147	1,315,308	6,300,423

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SKATING RINKS	DAY-USE	TOTAL
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AUBURN		199,935
BROCKTON		106,128
FALL RIVER		151,501
FRANKLIN		185,590
GARDNER VETERANS		149,957
GREENFIELD		99,833
HAVERHILL		107,256
HOLYOKE		141,232
LOWELL		12,547
MARLBORO		222,261
NEW BEDFORD		153,003
NEWBURYPORT		170,803
NORTH ADAMS		37,863
PEABODY		112,288
PLYMOUTH		121,697
SPRINGFIELD		111,533
TAUNTON		98,382
WORCESTER		193,490
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TOTAL		2,375,299
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SWIMMING POOLS	DAY-USE	TOTAL
AGAWAM		11,524
ATTLEBORO		16,829
BROCKTON		30,926
CHICOPEE		11,996
CLINTON		26,965
FALL RIVER		52,216
FITCHBURG		20,792
HOLYOKE		7,540
LAWRENCE		19,387
LEOMINSTER		16,266
LOWELL		17,060
LUDLOW		14,948
MILFORD		21,840
SOUTHBRIDGE		14,879
SOUTH HADLEY		16,443
SPRINGFIELD		8,239
WESTFIELD		10,725
WORCESTER #1 (SHINE)		34,269
WORCESTER #2		24,652
TOTAL		377,496



HERITAGE PARKS	NON-PAID	TOTAL
Fall River	186,244	186,244
Gardner	103,997	103,997
Holyoke	179,741	179,741
Lawrence	76,276	76,276
Lowell	361,145	361,145
Lynn	49,149	49,149
North Adams	50,928	50,928
<b>TOTAL</b>	<b>1,007,480.00</b>	<b>1,007,480.00</b>

BEACH AREAS	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
FT. PHOENIX	—	51,035	38,537	12,498	51
HORSENECK	24,410	418,713	111,627	307,086	443
SALISBURY	223,392	1,907,578	1,685,565	222,013	2,130
SCUSSET	46,830	167,164	95,773	71,391	213
SOUTH CAPE	1,868	33,675	16,366	17,309	35
TOTAL	296,500	2,578,165	1,947,868	630,297	2,874

# TOTAL ATTENDANCE ALL FACILITIES

	<u>CAMPING</u>	<u>DAY USE</u>	<u>NON-PAID</u>	<u>PAID</u>	<u>TOTAL</u>
FORESTS & PARKS	595,968	5,585,267	4,269,959	1,315,308	6,181,235
OCEAN BEACHES	296,500	2,578,165	1,947,868	630,297	2,874,665
RINKS					2,375,299
POOLS					377,496
HERITAGE PARKS			1,007,480		1,007,480
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TOTALS	892,468	8,163,432	7,225,307	1,945,605	12,816,175

# SUMMARY

## OFFICE OF PLANNING & DEVELOPMENT - FISCAL YEAR 1988

LAND ACQUISITION - 7/1/87 to 6/30/88

<u>CATEGORY</u>	<u>NO. of PARCELS</u>	<u>NO. of CONTRACTS</u>	<u>AVERAGE PER</u>		<u>TOTAL DOLLAR AMOUNT OF EACH CATEGORY</u>
			<u>CONTRACT</u>	<u>CONTRACT</u>	
APPRAISERS	76	32	*\$7,788.00		*\$249,223.00
TITLE EXAMINERS	68	15	** 1,268.00		** 19,029.00
SURVEYS	9	9	4,863.00		43,765.00

## LAND ACQUIRED IN FISCAL YEAR 1988

<u>NUMBER OF PARCELS</u>	<u>AMOUNT OF ACREAGE</u>	<u>TOTAL COST OF PARCELS ACQUIRED</u>
82	1,016 A	\$11,535,108.50
	GRAND TOTAL:	\$11,847,125.50

\*Includes LARGE South Beach Appraisal Costs (One appraisal alone cost \$72,400.00 for Meredith & Grew, Inc.)

\*\*Does NOT include LARGE South Beach Title Examination Cost!

\*\*\*Does NOT include Appraisals and Title Exams DEM had done in conjunction with non-profit organizations.



## ACQUISITION &amp; CONSTRUCTION

FISACL YEAR 1988

1 of 3

LAND ACQUISITION - 7/1/87 to 6/30/88

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
FOXBOROUGH	F. GILBERT HILLS S.F.	SANDRA BARTON ET ALS & BANKERS TRUST	7/2/87	31 A.	\$257,500.
TISBURY	MARTHA'S VINEYARD S.F.	TOWN OF TISBURY	7/6/87	13.5 A	EXCHANGE
EDGARTOWN	MARTHA'S VINEYARD S.F.	COMMONWEALTH OF MASS.	7/6/87	-2.23 A	DISPOSITION
UXBRIDGE	BLACKSTONE RIVER S.P.	JOHN H. VOSS ET UX	7/7/87	60.22 A	102,500.
ROCKPORT	HALIBUT POINT	TRUSTEES OF RESERVATIONS	7/15/87	10,599 S.F.	43,200.
WESTPORT	HORSENECK BEACH	ROBERT J. SZULEWSKI ET UX	8/13/87	50,000 S.F.	125,000.
WESTPORT	HORSENECK BEACH	PAUL A. WHEWELL	8/13/87	9,500 S.F.	20,000.
HARVICH	CAPE COD RAIL TRAIL	PENN CENTRAL CORP.	8/14/87	37,986 S.F.	20,595.5
BREWSTER	NICKERSON S.P.	JOHN P. GABRIEL ET UX	8/18/87	2.9 A	11,000.
ATHOL	LAWTON TREE FARM	MOUNT GRACE CONS. TRUST	8/26/87	364 A	562,000.
CHESTERFIELD	SUGARBUSH	THE TRUST FOR PUBLIC LAND	8/31/87	77 A.	137,500.
BREWSTER	NICKERSON S.P.	WALTER T. OLLEN	9/8/87	38,494 S.F.	300,000.
AYER, GROTON, PEPPERELL & DUNSTABLE	HOLLIS BRANCH	BOSTON & MAINE CORP. & OWNERS UNKNOWN	9/9/87	130.18 A (11.23 MI.)	760,000.
UXBRIDGE	BLACKSTONE RIVER S.P.	RUTH S. VOSS	9/15/87	8.7 A	190,000.
UXBRIDGE	BLACKSTONE RIVER S.P.	RUTH S. VOSS	9/15/87	1.3 A	45,000.
HADLEY	HOLYOKE RANGE CONNECTICUT RIVER	RAYMOND SZALA ET UX	9/15/87	12.5A 2.8A	41,250.
FALMOUTH	SWIFT ESTATE	ETHEL A. TRAPP	11/16/87	22.03 A	1,394,500. (3,100,000.)
SUDBURY	SUDBURY RIVER (IN CONJUNCTION WITH DIVISION OF FISHERIES AND WILDLIFE)	BRENTON H. DICKSON ET ALS	12/4/87	30.01 A 56.9 A	200,000. (367,250.)

## ACQUISITION &amp; CONSTRUCTION

2 of 3

FISCAL YEAR 1988

LAND ACQUISITION - 7/1/87 to 6/30/88

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
NORTHAMPTON	CONNECTICUT RIVER	JOHN I. BAK	12/22/87	0.9 A	\$225,000.
NORTHAMPTON	CONNECTICUT RIVER (LEASE)	INHABITANTS OF THE COUNTY OF HAMPSHIRE	12/22/87	(1.4A)	750.
DOUGLAS	DOUGLAS S.F.	FRED W. PILCH & OWNERS UNKNOWN	1/7/88	27 A	19,000.
LOWELL	LOWELL HERITAGE S.P.	FIRST BANCOMMUNITY DEVELOPMENT COMPANY	1/21/88	1,999.95S.F.	EASEMENT
LOWELL	LOWELL HERITAGE S.P.	LOWELL SUN REALTY CO. (LOWELL SUN)	1/21/88	200.73 S.F.	EASEMENT
BILLERICA	CONCORD RIVER	TIMBERCREEK INC.	1/27/88	9.5 A	666,470.
DOUGLAS	DOUGLAS S.F.	GUY VECCHIONE ET ALS	2/2/88	15.88 A	32,000.
CARUTSLE	GREAT BROOK FARM	COMMONWEALTH OF MASS.	2/9/88	(90 A)	LEASE
DOUGLAS	WALLUM LAKE	ALFRED W. PLITNICK ET UX	3/3/88	3,700 S.F.	9,250.
HADLEY	HOLYOKE RANGE	MARIAN J. SZALA & JOHANNA I ZENZAYER	3/22/88	14 A	35,000.
KINGSTON	CONNECTICUT RIVER BAY FARM	TRUST FOR PUBLIC LAND (IN CONJUNCTION AND AGREEMENT WITH THE TOWN OF KINGSTON)	4/8/88	7.75 A	292,494.
GREAT BARRINGTON	EAST MOUNTAIN S.F.	PEARL L. WINCORN	4/15/88	15 A	GIFT
MARLBOROUGH	MARLBOROUGH	EUGENE E. O'DONNELL ET UX (AGRICULTURAL PRESERVATION RESTRICTION)	4/29/88	(12 A)	RESTRICTI
BREWSTER	NICKERSON S.F.	LUCINDA D. HAMMATT	5/2/88	13 A	50,000.

ACQUISITION & CONSTRUCTION  
FISCAL YEAR 1988

LAND ACQUISITION - 7/1/87 to 6/30/88

3 of 3

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST
LAWRENCE	LAWRENCE SWIMMING POOL STORROW PARK	CITY OF LAWRENCE	5/11/88	1.9 A	- - -
NORTH ANDOVER	BOXFORD S.F.	LEO H. MURPHY, ESTATE OF	5/11/88	18 A	108,000.
BOSTON	LOWER MILLS HERITAGE S.P.	HISTORIC MILLS PROPERTIES, INC.	6/8/88	17,068 S.F.	640,000.
NATICK	CHOCITUATE S.P.	MICHAEL G. CUNNIF ET UX	6/10/88	309 S.F.	EXCHANGE
NATICK	CHOCITUATE S.P.	COMMONWEALTH OF MASS.	6/10/88	-309 S.F.	EXCHANGE
ROCKPORT	HALLIBUT POINT	TRUST FOR PUBLIC LAND (VIERECK PROPERTY)	6/14/88	2.15 A	275,000.
MARTHA'S VINEYARD	SOUTH BEACH	MANY OWNERS	6/30/88	53 A (39 PARCELS)	4,091,000.
LAWRENCE	MERRIMACK RIVER FRONT PARK	LAWRENCE REDEVELOPMENT AUTHORITY	6/27/88	23.31 A	880,749.



CONSTRUCTIONFISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
II	Salisbury	380-87	P. Caliacco Corp.	\$21,011.76		Emergency Electrical Repairs Salisbury Beach
II	Salisbury	285-86	Gaffny Corp.	\$132,424.96		Rehabilitation of Comfort Stations and Shower Rooms
II	Harold Parker S.F.	343-87	Gaffny Corp.	\$68,900.00		Rehabilitation of Comfort Stations
II	Ashland S.P.	328-87	Dowling Construction Co.	\$317,092.50		Beach Improvement and Expansion
II	Halibut Point	379-87	Frost Higgins	\$173,122.00		Parking Lot Construction
II	Walden Pond	440-88	Dowling Construction Co.	\$102,154.50		Bank Restoration Phase II B



CONSTRUCTION

FISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
II	Bennett Field Pool Worcester	449-88	Poraga Pool Service	\$79,372.68		Filter Renovation

CONSTRUCTIONFISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
V	Holyoke HSP	362-87	Mountain Landscape	\$54,082.58		Phase II Site Improvements
V	Holyoke Range S.P.	366-87	Garland Constr.	\$261,840.00		Summit House Improvements, eg. carpentry, roofing, flashing, lathing and plastering, lighting protection of electrical work. ✓
V	Holyoke H.S.P.	363-87	Warren Communica- tions, Inc.	\$51,698.00		Fabrication for Armand Hammer Exhibit Presentation.
V	DAR S.F.		Independent Roofing	\$36,272.50		Re-roofing of comfort stations
V	Holyoke HSP	434-88	Valley R.R. Co.	\$155,000.00		Restoration of Antique Rail Passenger Coach Holyoke H.S.P.
V	Western Mass. Pools	441-88	Interstate Constr. & Excavation	\$24,995.00		Rehabilitation of Western Mass Pools Sandblasting
V	Mt. Sugarloaf State Reservation	390-88	Garland Constr. Corp.	\$32,000.00		Mt. Sugarloaf Observation Power Rehabilitation

CONSTRUCTION

FISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
V	Smeay & Fitzpatrick Rinks Springfield & Holyoke		Chase Glass Co.	\$16,108.00		Entrance Door Replacement

CONSTRUCTION

FISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
V	Mt. Greylock	465-88	J.H. Maxy Millian, Inc.	\$511,650.00		Roadway improvements to Rockwell Road
V	Mt. Greylock	387-87	South Shore Waterproofing Co.	\$63,463.00		Repairs to the War Memorial Power



CONSTRUCTIONFISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
	Lawrence HSP		Briggs	11,140	1/15/88	Environmental Testing for Jo - Gil Bldg.
	Lawrence HSP		Hoyle Tanner	38,560	1/15/88	
	Lynn HSP		Leone Design	315,000	8/87	Exhibit Design
	Roxbury HSP		Synterra	277,649	7/1/87	Site design for Dillaway-Thomas House
	Holyoke HSP		Berkshire	55,760		Final Design
	Blackstone HSP		RPPW	130,000	1/1/87	Feasibility Study for Worcester
	Blackstone HSP		Urban Design	146,026	4/1/87	Schematic Site Design

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CONSTRUCTIONFISCAL YEAR 1988

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK
	Blackstone HSP		Scape	379,540	9/30/88	Final Design
	Lynn HSP		Paul CK Lu	60,250	12/30/86	Site improvements
	Lowell HSP		Barnes & Jarnice	30,000		Emergency repair of Lower Lochs
	Fall River HSP		Keyes Associates	16,600	4/23/87	Pedestrian Repair
	Blackstone HSP		Public Arch.	10,250	7/1/87	Arch & historical research
	Lowell HSP		Made in USA	100,000	1/20/88	Video
	Lawrence HSP	1	Walker Kleusing	118,000	14/1/87	Pemberton Swuare Design

Small Projects:

Roofing, painting, reshingling

469-88	Region II	2400.00
479-88	Region II	1400.00
476-88	Region II	1485.00
	Relining filter tank, valves, etc.	
385-87	Fall River Pool	1875.00
372-87	Fall River Pool	1650.00
446-88	Brockton Pool	4850.00
443-88	Lowell Pool	4850.00
406-88	Auburn Rink Elec. (concrete)	23.00
405-88	Auburn Rink Elec.	855.00
427-88	Region I Addition	4240.00
412-88	Region I Addition	4350.00
411-88	Borderland Gaytank	3600.00
428-88	Region I Addition	1880.00
413-88	Plymouth Rock Portico	2360.00
343-87	Harold Parker Constr.	3445.00
459-88	Quinn's Bathhouse	2835.00
R4-02-89	(F&P Robinsonwells)	4500.00
420-88	Salisbury Gold House Roof	4900.00
422-88	Salisbury Pavement Repair	3300.00
455-88	Pemberton Path Granite Well	4900.00
373-87	Tile Replacement @ Lowell HSP	1600.00
346-87	Heater Repair & Replacement	4845.00
	Lowell HSP	
423-88	Lock Chamber Repair Lowell HSP	4400.00

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\$72,823.00







ACME  
BOOKBINDING CO., INC.

DEC 7 1992

100 CAMBRIDGE STREET  
CHARLESTOWN, MASS

